THE STORY OF THE US LABOR MARKET: INCREASING DISCONNECTION / DECREASING COVERAGE

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By

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ABSTRACT
For the past four decades, the US labor market has witnessed major changes. Demographic changes, technology, globalization, industrial restructuring, and long-lasting effects of recessions have dramatically affected its size and composition.

In this study, I examine the structure of the US labor market from the perspective of a wide range of labor market outcomes. My findings show that, unemployment rates for subgroups of the population have been very sensitive to general demand conditions, and they change over the cycles. This cyclical pattern shows no significant change over time. However, structural changes in the market have been substantial. Labor force participation rates for prime-age men have been on a declining secular trend for half a century and, today roughly 11 percent of prime-age men (7 million) are neither working nor looking for work. My analysis indicates that structural factors have played the major role in this decline by reducing demand for less-skilled male workers.
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INTRODUCTION

For the past four decades, technology, globalization, industrial restructuring, and long-lasting effects of recessions have influenced the size and composition of US labor markets. However, these changes have not affected all segments of the population evenly. Rather, they created greater challenges for certain groups, especially for youth, men, and the less-educated. Employment outcomes of these groups have deteriorated over time. As a result, an increasing number of people have been disconnected from the labor force\textsuperscript{1}; and the majority of these people have also lost their connection to family life and society.

The labor force participation rate\textsuperscript{2} reflects the impacts of demographic, economic and social trends. Until the 2000s, this indicator had increased as a result of the increase in female labor force participation. However, since the early 2000s, labor force participation rates have been on a declining trend for both men and women. At a more disaggregated level, age groups have been affected differently by these developments.

Young people have traditionally lower participation rates; but in this period, they have experienced a dramatic decline due to an increase in school enrollment. Among young workers, participation rates have dropped more steeply for those enrolled in school and those with less than a high school diploma.

However, the fall in the labor force participation of prime-age men (between 25 and 54) is an especial anomaly. The labor force participation of prime-age men has been declining for more than fifty years, and the trend accelerated in the early 2000s. In 2016, 11 percent

\textsuperscript{1} “The labor force is made up of the employed and the unemployed.” (BLS)

\textsuperscript{2} “The labor force participation rate is the percentage of the population that is either employed or unemployed (that is, either working or actively seeking work)” (BLS)
(more than 7 million) of men between the ages of 25 and 54 were neither working nor looking for work. Over the past five decades, all segments of the prime-age male cohort have experienced a fall in their labor force participation rates, but rates have dropped more steeply for Black men and those with a high school degree or less.

Historically, Black men, single men, and men with no more than a high school diploma have had lower labor force participation rates. Also, for more than a decade, prime-age Hispanic men have been participating at higher rates than prime-age White men, and less-educated White men have been experiencing sharp declines in their participation rates.

Declining labor force participation rates among prime-age men has recently gained increased attention from policy makers, academicians and media. For example, Summers (2016) expects that based on existing factors, “more than one-third of all men between 25 and 54 will be out of work at mid-century”, and according to Krueger (2016) “addressing the decades-long slide in labor force participation by prime-age men should be a national priority”. Eberstadt (2016) defines the issue as a “catastrophe”.

All of these and other recent studies emphasize the importance of the issue. However, they have different explanations for the decline. Some studies focus more on supply-side factors. For example, Eberstadt (2016) and Autor et al. (2016) blame welfare programs, especially disability insurance, while Krueger (2016) points out physical and mental health problems. Other studies (CEA, 2016; Summers 2016) see the issue as involuntary, and claim that demand-side factors have been more dominant. They blame technology, globalization and the shift in the composition of the economy from sectors that are male-

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dominated and employ largely less-educated men, and long-lasting effects of the recessions.

In addition to these structural trends, cyclical fluctuations have affected the size and composition of US labor force. In many respects, the Great Recession was the longest\(^4\) and deepest recession in the postwar period. Between November 2007 and December 2009, the US economy lost 8.6 million jobs, and the unemployment rate hit double digits. The share of long-term\(^5\) unemployed increased to historically high levels (45.5 percent of all unemployed).

The sluggishness of the recovery is another feature that distinguishes the Great Recession from previous post-1945 recessions. For example, after 2007, it took more than 80 months for employment to return to its pre-recession peak, much longer than in previous recessions, and the distribution of employment growth was uneven.

From 2009 to 2016, the US economy added 14.1 million jobs, but distribution of these jobs varied among different segments of the population, and across regions. This uneven recovery was at least partly a reflection of the ongoing shift in the industrial composition of the US economy, and the types and requirements of new jobs.

High and persistent unemployment, historically high levels of long-term unemployment and an uneven recovery raise the question of whether structural unemployment is increasing in the US. Structural unemployment is mostly related to mismatch of the workers’ skills, and the skills required for the available jobs, and it persists even if the

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\(^4\) According to the National Bureau of Economic Research (NBER), the recession started in December 2007 and ended in June 2009.

\(^5\) “Those who were unemployed more than 26 weeks” (BLS)
economy grows. On the other hand, cyclical unemployment is affected by business cycles. The answer to the question is important for policy makers. If most unemployment is cyclical, the economic policies that boost general demand can decrease unemployment. But if it is structural, expansionary fiscal and monetary policies are less effective in reducing unemployment.

If current trend continues, 17 percent of prime-age men will be out of the labor force in 2051. Increasing numbers of men disconnected from the labor force will create economic and social problems. Thus, understanding the factors behind this long-lasting decline, and designing policies to reverse this trend are vital to both boost the growth and improve the wellbeing of these men and society as a whole.

This study proceeds in three parts. In the first part, I examine labor force participation rates for young workers, prime-age men and women, and older workers. The primary focus of this section is the decline in labor force participation rate for prime-age men. In the second part, I analyze the change in employment in the Great Recession compared to the 1981-82 recession, and analyze the pace and evenness of employment growth in the post-Great Recession era. In the third part, I examine whether there is a tendency for unemployment to become more concentrated in certain segments of the population over time.
CHAPTER 1: LABOR FORCE PARTICIPATION

The labor force participation rate measures the share of the civilian non-institutionalized population 16 years old and over that is either working or actively looking for work (BLS). It is a major labor market indicator that shows labor resources available for economic activity. Labor force participation peaked in early 2000, and since then has trended downward. It declined to 62.4 percent (lowest level since 1978) in September 2015, and since then it has fluctuated in a narrow band. At a more disaggregated level, almost all sub-groups except those 55 years and over have had a declining labor force participation rate since early 2000s.

There are both demand side and supply side explanations for the decline in labor force participation rates. On the demand side, fluctuations and changes in the composition of general demand over the past decades have been accompanied by decreasing rates of participation. In addition, the weak recovery and weak labor markets since 2008 have depressed the wages and increased incentive for not working. On the supply side, the major factors are aging population, deteriorating health status and availability of alternatives to working. Due to low wages and prolonged high unemployment, the opportunity cost of not working decreases, and people can find another activities such as house work, leisure, and education. Age groups have different trends, and have been affected by these developments differently. Therefore, I will separately examine the labor force participation rates for young people, prime-age people (male and female), and people 55 years old and older.
1.1 Youth Labor Force Participation

Labor force participation rates are traditionally lower for teens than other age groups due to their school enrollment (Ross and Svajlenka, 2015). Since the early 2000s, labor force participation of teenagers has declined. Increasing importance of the level and quality of education is contributing to this trend (Morisi, 2017). In addition to this trend, economic recessions have increased school enrollment rates further, while depressing labor force participation rates for young workers. Krueger (2016) states that compared the older workers, school is more viable option for young workers, and thus, their labor force participation rates are more sensitive to the business cycles.

**Figure 1: Labor Force Participation Rate, 16-19 Year Olds, 1948-2016 (%)**

![Graph showing labor force participation rate from 1948 to 2016.](image)

Source: BLS

We can separate teenagers into two groups: Those enrolled in school and those not-enrolled in school. Historically, teenagers enrolled in school have lower labor force participation rates than teenagers not-enrolled in school, and labor force participation rates for both group have been declining. The labor force participation rate for not-enrolled
teenagers has also declined from 77.5 percent in 1985 to 65 percent in 2015 (Figure 2). However, the decline in labor force participation (around 20 percentage points) has been more severe for those enrolled in school. There are a number of reasons for this development. First, the importance of educational attainment has increased over time. Therefore, high school students are preparing for college more seriously by spending more effort and time on school works (Morisi, 2017). As students devote more time to education, they have less time for participation in the labor force.

**Figure 2: Enrollment Rates and Labor Force Participation Rate- Aged 16-19 Years, (%)**

![Graph showing enrollment rates and labor force participation rates for aged 16-19 years from 1985 to 2015.](image)

Source: BLS

Second, parents, students and school admissions officials might see extracurricular activities, community service, and training programs as more valuable than low-paid jobs. Especially teens with more highly educated parents, have had a tendency to actively participate in extracurricular and volunteer activities rather than working (Shirley, 2007). The increasing availability of financial aid and credit opportunities for college education,

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6 For the details of time use of teens, see Morisi (2017) and Porterfield & Winkler (2007). According to American Time Use Survey (ATUS), enrolled young individual spent 7.72 hours a day on educational activities for during 2010–14 (Morisi, 2017).
and declining earnings for teens, have also contributed to decline in labor force participation and employment of teens. Median hourly earnings for teens paid at hourly rates declined 7.3 percent between 2002 and 2014 (Morisi, 2017).

Young people 20–24 years are more likely than teenagers to participate in the labor force and less likely to be enrolled in school. Young men in this age group have higher labor force participation rate than young women, but the gap has narrowed over time. Figure 3 indicates that the labor force participation rate of female aged 20–24 years peaked at around 74 percent in the late 1980s, declined during 1990s and 2000s, and has remained relatively stable for the past several years. However, the rate for men aged 20-24 years have had a declining trend for decades, and the Great Recession contributed to this trend. From 1989-2016, the labor force participation rate of young adult men declined by 12.1 percentage points, while the rate for women declined by 4.4 percentage points (Table 1).

**Figure 3: Labor Force Participation Rate, Aged 20-24 by Gender (%)**

![Figure 3: Labor Force Participation Rate, Aged 20-24 by Gender (%)](image)

Source: BLS
Table 1: Change in the Labor Force Participation Rate of Young Adults (percentage points)

<table>
<thead>
<tr>
<th>Period</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989-2016</td>
<td>-12.2</td>
<td>-4.4</td>
</tr>
<tr>
<td>2000-2016</td>
<td>-9.7</td>
<td>-5.1</td>
</tr>
<tr>
<td>2007-2016</td>
<td>-5.7</td>
<td>-2.2</td>
</tr>
</tbody>
</table>

Source: BLS

Figure 4 and 5 show that participation rates have declined for both groups since early 2000s, but the decline in the labor force participation of enrolled adults is larger than the drop among not-enrolled adults.

**Figure 4: Labor Force Participation Rates, Enrolled Aged 20-24 (%)**

Source: BLS
Figure 5: Labor Force Participation Rates, Not-Enrolled Aged 20-24 (%)

Source: BLS

When we look at not-enrolled people, men have higher labor force participation rate at all education levels, but the decline since 2000 is more severe for men and young adults with less education (Table 2).

Table 2: Change in Labor Force Participation Rates and Educational Attainment of People Aged 20 to 24 Years, Not Enrolled in School

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men-total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td>91.2</td>
<td>86.1</td>
<td>–5.1</td>
</tr>
<tr>
<td>High school graduates, no college</td>
<td>86.7</td>
<td>76.3</td>
<td>–10.4</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>91</td>
<td>84.7</td>
<td>–6.3</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>92.8</td>
<td>87.1</td>
<td>–5.7</td>
</tr>
<tr>
<td>Bachelor’s degree and higher</td>
<td>97.4</td>
<td>92.2</td>
<td>–5.2</td>
</tr>
<tr>
<td><strong>Women-total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td>77.4</td>
<td>77.3</td>
<td>–.1</td>
</tr>
<tr>
<td>High school graduates, no college</td>
<td>53.3</td>
<td>52.6</td>
<td>–.7</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>77.2</td>
<td>72.6</td>
<td>–4.6</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>84.1</td>
<td>80</td>
<td>–4.1</td>
</tr>
<tr>
<td>Bachelor’s degree and higher</td>
<td>88</td>
<td>84.9</td>
<td>–3.1</td>
</tr>
</tbody>
</table>

Both structural and cyclical factors have contributed to the decline in labor force participation rates for youth. Weak general demand limits the number of available jobs for teenagers and young adults, and they also have to compete with experienced workers for the low wage jobs with low educational requirements. Hurst (2016) states that in addition to demand, supply of lower skilled workers have been negatively affected by technology, because relatively cheap and enjoyable video games and social media increase their reservation wage. Similarly, Krueger (2016) states that young men enjoy more from leisure by playing video games.

Another explanation is that stagnant wage growth make teenagers less willing to work, and they might not feel pressure to earn money to pay the bills. However, while young workers do not need to work for money, such low rates of labor force participation and employment may affect their future outcomes. Early work experience help teens build human capital by providing new skills, expanding their networks, and facilitating a smooth transition into the labor market. Ross and Svajlenka (2015) find that lower work experience during high school years, especially for those who are not enrolled in college, has worsened the future labor market outcomes.

Young people neither in the labor force nor in school cannot accumulate social capital such as networks, and they are less likely to be in the labor force in their prime years. They are also more likely to get involved in illegal activities, which also reduces their chances of being employed in later years. The labor force participation of not-enrolled adult young

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8 See Mortimer, J. T. (2010) for further discussion about the benefits and risks of youth employment
men is lower than the participation rate of prime-age men, and the gap is even larger if we exclude enrolled prime-age men. This situation might regularly contribute to the decline in the labor force participation of prime-age male.

1.2 Labor Force Participation for Prime-Age Population

The labor force participation rates for prime-age men and women have declined since the early 2000s. However, until the 2000s, labor force participation rate for men and women had moved very differently. Prime-age women labor force participation had an upward trend, peaking at 77.3 percent in 2000, and dropping to 74.5 percent in 2016. In the same period, labor force participation rate for prime-age men declined from 92.1 percent to 88.6 percent. I will examine the labor force participation rates for men and women separately.

Figure 6: Prime Age Labor Force Participation Rates-Men and Women (%)

Source: BLS
1.2.1 Prime-Age Men

The labor force participation of prime-age men has been declining for more than 50 years. It dropped from 98 percent in 1950s to 88.6 percent in 2016. The decline has gathered increasing attention from policy makers and academicians. In June 2016, the Council of Economic Advisers (CEA) published a report “The Long-Term Decline in Prime-Age Male Labor Force Participation”, trying to explain for the decline in the participation rates, and give policy recommendations. Eberstadt, in 2016 published a book “Men without Work”, describing this shift as a catastrophe, and an “invisible crisis” for the USA. Eberstadt (2016) thinks that the situation is largely voluntary. Krueger (2016) in his recent study “Where Have All the Workers Gone” states that “addressing the decades-long slide in labor force participation by prime-age men should be a national priority”, and he emphasizes the role of physical, mental and emotional health problems as a barrier to work for these men. Summers (2016) also emphasizes the importance of the problem and largely blames technology. He also expects that if current trends and factors continue, more than one-third of all prime-age men will be out work at mid-century. All of these and other recent studies emphasize the importance of the problem, but they identify different causes and as a result, offer different policy recommendations according their causes.

*What does this trend imply?*

The fifty-year linear trend of not working men implies that 24 percent of prime-age men will not work in 2051 (Figure 7). This figure includes the unemployed prime-age men,

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9 The paper was prepared for the Boston Federal Reserve Bank’s 60th Economic Conference, October 14, 2016.
and unemployment rates have a cyclical pattern rather than a secular trend. If we do the same exercise only for men who are out of labor force, then the percentage of prime-age male not in the labor force will reach to nearly 17 percent in 2051 (Figure 8).

**Figure 7: Linear Trend, Not-Working Prime-Age Male (including unemployed, %)**

![Graph showing the trend of not-working prime-age male from 1967 to 2051.](image1)

Source: Author’s calculation based on BLS data.

**Figure 8: Linear Trend, Prime-Age Male Not in the Labor Force (%)**

![Graph showing the trend of prime-age male not in the labor force from 1967 to 2051.](image2)

Source: Author’s calculation based on BLS data.
**Who are These Men?**

According to BLS data, more than 7 million American men between the ages of 25 and 54 were neither working nor looking for work in 2015 and 2016. Looking at the demographic distribution of these men, Black prime-age men have historically lower labor force participations rates than White or Hispanic men, and this gap has grown over time (Figure 9). White prime-age men had participated at higher rates than other groups. However, over time the gap between Hispanic prime-age men and White prime-age men has disappeared, and in recent years even reversed. This happened largely due to decline in the participation rate of White men.

Black men are over represented in the not in the labor force (NILF) pool. In 2016, on average more than 1.4 million black were not in the labor force and this was almost 20 percent of the total NILF pool. In 2016, on average 4.9 million White men and 1.1 million Hispanic men were not in the labor force.

**Figure 9: Prime-Age Male Labor Force Participation Rate by Race and Ethnicity (%)**

Source: BLS
The size and composition of the NILD pool is also affected by educational attainment. In the 1960s, participation rates were similar for different education levels (CEA, 2016). Over time labor force participation rates have declined for all educational attainments, but rates have dropped more steeply for those with high school education or less (Figure 10). Today, there are substantial differences in labor force participation rates between educational attainments.

In addition, the marital status of individuals is highly correlated with their labor market status. Compared to single men, married men are less likely to be out of the labor force. Married men accounted for only a third of NILF pool in 2015.

**Figure 10 : Prime-Age Male Labor Force Participation Rates by Educational Attainment (%)**

Possible Explanations for the Decline in the Prime-Age Male Labor Force Participation

There are a number of factors for the long-term decline in prime-age labor force participation. Many scholars and policy makers have generally accepted these factors, but they weight the factors differently.

BLS data show that the main reasons for not participating in the labor force for 1991, 2004 and 2015 (Table 3). The share of prime-age males not in the labor force doubled in 2015 compared to 1991. In 2015, almost 11 percent of prime-age males were not in the labor force. Being ill or disabled explains the largest share during whole period. In 2015, almost 50 percent of prime-age males not in the labor force gave “ill or disabled” as a reason compared to 60 percent in 1991. Going to school was a second important explanation. In 2015, 1.7 percent of the prime-age male population were out of the labor force due to school compared to 0.6 percent in 1991. “Home responsibilities” was the third reason. In 2015 1.2 percent of prime-age men cited as “home responsibilities” compared to 0.3 percent in 1991. However, time use survey shows that there is little evidence that men are staying home to care for children or to do house work\(^\text{10}\) (Table 4). Another big jump was in the share of men who cited “retired”. It increased to 1.2 percent in 2015 from 0.3 percent in 1991. The share of “could not find work” is relatively small and affected by the business cycles. During years with weak labor markets such as 2001 and 2009, the share accounted for this group increased.

\(^{10}\) See The CEA (2016) for detailed analysis.
Table 3: Reasons for Not Participating in the Labor Force (% of the total prime-age male population)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>5.9</td>
<td>9.2</td>
<td>11.1</td>
</tr>
<tr>
<td>Ill-disabled</td>
<td>3.5</td>
<td>5.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Going to school</td>
<td>0.6</td>
<td>0.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Retired</td>
<td>0.3</td>
<td>0.7</td>
<td>1.1</td>
</tr>
<tr>
<td>Home responsibilities</td>
<td>0.3</td>
<td>0.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Other reasons</td>
<td>1.1</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Could not find work</td>
<td>0.6</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Other reasons</td>
<td>0.5</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

Source: Lysy, “The Structural Factors Behind the Steady Fall in Labor Force Participation Rates of Prime-age Workers”, October 2016. Data was assembled by Steve Hipple, (BLS).

1- Deteriorating Health Status

Health status of an individual both affect his/her employment status, and is affected by his/her employment status. There is a high correlation between health status and employment status. There is a two way relation, and both can affect each other. On the one hand, health problems might lead people to drop out of labor force. But, on the other hand, as people stay out of the labor force, their economic and social well-being deteriorate, and that affects their health negatively, which then makes it even more difficult them to re-enter the workforce.

According to Table 3, ill-disabled is the major reason for prime-age men not participating in the labor force. The deteriorating health status of middle aged American has drawn attention recently. In a recent Brookings Institution paper, Case and Deaton (2017) find that since the late 1990s, midlife mortality has been increasing among middle-aged non-Hispanic Whites with no more than a high school diploma. According to this study, “This is due to both rises in the number of “deaths of despair”—death by drugs, alcohol and suicide—and to a slowdown in progress against mortality from heart disease.
and cancer, the two largest killers in middle age.” In addition, Krueger (2016) finds that almost half of the prime-age men not in the labor force take pain medication on a daily basis, and many men NILF consider that health problems prevents them from working.

Although health status seems to be a supply side factor, it is affected by demand conditions. Less-educated and low income people are more likely to have poor health, lower employment and labor force participation rates compared to high income individuals. Decline in demand for less-educated prime-age men reduces the employment levels and real wages. At the same time, the cost of health care services has increased more than consumer price inflation. This might make it more difficult for these people to access health care services. In addition, the social status of these men might be worsened over time. Socioeconomic status is negatively associated with risky behaviors, such as smoking, drinking, obesity, and lack of exercise (Deaton, 2003), and their health status might deteriorate further. As a result, health problems might be either the reason for or the result of non-participation, or both for some cases.

2- Disability

Disability is one of the most important and debated reasons. Social Security Disability Insurance (SSDI), Supplemental Security Income (SSI) and Veteran Administration Disability Compensation program support disabled people. Critics claim that these welfare programs encourage dependency and not to work. According to a study by the CEA (2016), 3.3 percent of prime-age men (more than 25 percent of nonparticipating prime-age men) receive SSDI payments compared to 1 percent and 2.7 percent in 1967 and 2000 respectively.
In addition, 15 percent of nonparticipating prime-age men receive SSI benefits and the number of prime-age veterans not in the labor force was around 850,000 (12% of total NILF) in 2016. The total number of prime-age men receiving SSDI, SSI and veteran compensation (assuming all prime-age veterans) indicates that more than 50 percent of prime-age men who are not in the labor force are receiving disability payments. Similarly, Eberstadt (2016) states that 57 percent of prime-age men not in the labor force lived in homes with disability benefits in 2015 compared to 38 percent in 1985. These numbers support the numbers in Table 3 that shows almost 50 percent of prime-age men in NILF pool had “illness-disability” reasons in 2015.

The share of men who receive disability benefits has increased over time. However, the amount of monthly benefits seems insufficient compared to poverty line (Figure 11). The average monthly benefit paid under SSDI in 2016 was nearly $1,200 or around $14,000 annually, while SSI benefits were much lower\(^{11}\). With the decline in employment and real wages especially for less-educated men, more workers on the margin might be choosing to get disability benefits (Lysy, 2016\(^{12}\); Olsen, 2016). More than a third of these men are living in poverty (CEA, 2016), and the monthly disability payments, especially for SSI are lower than the minimum wage. Also, the number of prime-age men not in the labor force receiving no disability benefits has increased more than the number of those receiving disability benefits, and as a result the share of “Disability-illness” response declined to 50

\(^{11}\) See Monthly Statistical Snapshot of SSA for details. [https://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/](https://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/)

percent in 2016 from 60 percent in 1991. Therefore, disability insurance can explain only a limited part of the decline.

**Figure 11: Breakdown of Prime-Age Male and Spouse Income from Government Sources**

![Chart showing income sources for prime-age men and men not in the labor force.]


**3- Retirement**

The ratio of retired prime-age men increased from 0.3 percent in 1991 to 1.1 percent in 2015, which was 10 percent of all prime-age men not in the labor force. Despite the increase in retirement age, the share of retired prime-age men has increased over time. There might be two reasons for this development. First, prime-age men may have enough savings for the rest of their lives, and they do not need to work anymore. Second, due to low wages, pensions become more attractive than low wage jobs for those who are eligible for retirement.

At a more disaggregated level, in 2014, the share of retired men not participating in the labor force was 0.8 percent (0.6 percent in 2004) among college graduates, lower than other
educational attainments (Hipple, 2015). Also, it increased only 0.2 percentage points compared to 2004, the smallest increase among all educational attainments. Thus, these data seems to support the second explanation more than the first explanation. In addition, Yellen (2014) states that “some "retirements" are not voluntary, and some of these workers may rejoin the labor force in a stronger economy.”

4- Going to school

Table 3 shows that in 2015, 1.7 percent of prime-age-men (15 percent of the men not in the labor force) consider school as a main barrier to participate in labor force compared to 0.6 percent in 1991. Employment opportunities and wages increase as educational attainment increases. As a result, over time the wage gap between college graduates and high school graduates has increased. At the same time, stagnant and low real wages for less-educated people have reduced the opportunity cost of going to school while student loans have become more available. New jobs now require more skills and higher education. As a result, enrollment rates and share of college graduates have increased over time. In addition, today an increasing number of people are pursuing post-graduate degrees. For example, many master programs such as MBA and public policy programs require work experience and people generally enrolled these programs after only they get work experience. The average ages of the students in these programs are generally above 25. This is a good thing for both enrolled students and the economy as a whole. However, education decisions have been affected by the labor market conditions. During recessions, school become a good alternative.
5- Marital Status

BLS data show that married men, especially with kids, are more likely than single men to be employed, and less likely to drop out of the labor force. However, over time, marriage rates have been declining for all demographic groups and the decline has been more steeply among less-educated and low income people.

Marital status and employment status is correlated, but there might be a two-way relation between the two variables. On the one hand, marital status might affect labor force status. Akerlof (1998) states that marriage has a positive effect on labor market outcomes. Eberstadt (2016) argues that marital status and family structure are important determinants for non-participation of prime-age men. Similarly, Summers (2016) also claims that declining marriage rates increase rates of labor force withdrawal.

On the other hand, economic conditions and employment status might also affect the marital status of the individuals. First, compared to 50 years ago, people are more willing to marry people with similar social and economic status. Robert Putnam (2015) in his book “Our Kids”, states that in the US, individuals have increasingly married people with similar educational backgrounds. Today, men in the NILF pool have a similar tendency. More than 75 percent of prime-age men not in the labor force do not have a working wife (CEA, 2016). Second, it is widely accepted that changes in economic conditions affect the employment of prime-age men, and finally family ties. For example, Putnam (2015) argues that many men had lost their jobs as a result of the Great Depression, and this reduced the marriage rates. The US economy as a whole has been in a better place compared to 60 years ago; however, employment opportunities and real wages have not been improved for less-educated people. This might be reducing the marriage rates among
this group. In addition, a Pew Research paper presented by Wang and Parker (2014) states that “for young adults who want to get married, financial security is a significant hurdle.”

Finally, family structure and stability of family have huge impacts on cognitive, emotional, social, and physical developments of children, and family stability might cause behavioral problems for children (Crosnoe et al., 2014). Then, this reduces educational and employment outcomes for these children in their early life, and then their prime-age years.

6- Incarceration

Another important factor is the increasing incarceration rate. Incarceration rates are roughly five times as high today as they were in 1970s (Putnam, 2015). According to CEA Report (2016), between 6 and 7 percent of the prime-age male population in 2008 had been incarcerated at some point in their lives, and many men in this group have experienced difficulties finding a job after being released. Moreover, measured incarceration rates have been more concentrated among less-educated young men, especially young black men. According to Eberstadt (2016), incarceration rates partly explain the fact that labor force participation has declined more for Black men and less-educated men than for other demographic groups. Also, incarceration deteriorates employment outcomes of both incarcerated and non-incarcerated young Black men (Holzer, 2007).

These men are experiencing more difficulties today, because of the shift in the industrial composition of the economy. New jobs require more education and soft skills. There are also some legal and informal restrictions for employment of these men in certain rapid growing areas such as education and health.
The employment outcomes of the prime-age men also depend on developments in other demographic groups. For example, these groups’ increasing employment and labor force participation rates might reduce labor market opportunities for prime-age men. In addition, many jobs require less physical effort due to technological progress and shifting to a service economy. Today more jobs have become available for both men and women, and they have to compete with each other.

Also, labor force participation rates of older people and their share in the labor market have increased over time. With the increase in retirement age, more workers hold their jobs at the age of 55 and over. According to a Pew Research Center study (2014), older Americans have stayed more in the labor force, while young people have remained out of the labor force longer. Finally, decline in the employment and labor force participation of young adults might also lead to decreases in the labor force participation rate for prime-age men in future. This could occur, because young adults who are neither...
enrolled in school nor working cannot gather sufficient skills and experience, and they are less likely to get a job when they become adult.

*Alternative Use of Time: What are prime-age men doing with their time?*

One of the possible explanations for declining labor force participation rate for prime-age men is that they spend more time than they did on household activities and caring for household members. BLS data show that in 2015, 1.1 percent of all prime-age men, and more than 10 percent of prime-age men not in the labor force gave home responsibilities as a reason for not participating. Table 4, prepared by CEA, reports the average number of minutes per day spent on various activities in 2014. Table 4 shows that prime-age men not in the labor force spent less time on caring for households than all prime-age men on average, and spent more on leisure. Prime-age men not in the labor force spend only 27 minutes more for household activities and services than the average of all prime-age men. Also, educational attainments may affect the allocation of time. Aguiar and Hurst (2007) examine the trends in the allocation of time in the United States between 1995 and 2005. They find that,

Even more strikingly, less educated non-employed men enjoy 10 more hours per week of leisure than more educated non-employed men. This is made possible by less educated non-employed men performing less informal market work and less job search and training, as well as less non-market work, less child care, and less religious or civic activities.

Another explanation for the decline in labor force participation is that TV-shows, computer games and internet have made leisure more enjoyable and cheaper, and this reduces willingness to work (Hurst, 2016; Eberstadt, 2016). There is an increase in the time spent on Television, computers and the Internet for prime-age men not in the labor force.
However, we cannot say the relationship is causal. More than a third of these men have been living in poverty (CEA, 2016). They are less happy, more sad, and more stressed than working men and unemployed men (Krueger, 2016). Enjoyable leisure activities such as TV, computer games and social media might be the alternatives for working and school for young people rather than prime-age men. It is less likely to be a primary reason that prevents these men from working.

Table 4: Time Use of Prime-Age Men in 2014

<table>
<thead>
<tr>
<th>Time Use Category</th>
<th>Prime-Age Men Overall</th>
<th>Prime-Age Men Not in the Labor Force (A)</th>
<th>Prime-Age Men in the Labor Force (B)</th>
<th>Difference (A-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring for Household Members</td>
<td>29</td>
<td>28</td>
<td>29</td>
<td>-1</td>
</tr>
<tr>
<td>Caring for Non-Household Members</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td>8</td>
<td>25</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Household Activities and Services</td>
<td>84</td>
<td>111</td>
<td>80</td>
<td>31</td>
</tr>
<tr>
<td>Socializing, Relaxing, Leisure</td>
<td>251</td>
<td>472</td>
<td>221</td>
<td>251</td>
</tr>
<tr>
<td>Watching Television</td>
<td>154</td>
<td>335</td>
<td>130</td>
<td>205</td>
</tr>
<tr>
<td>Work</td>
<td>316</td>
<td>7</td>
<td>357</td>
<td>-350</td>
</tr>
<tr>
<td>Other (including Sleep)</td>
<td>736</td>
<td>773</td>
<td>731</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: CEA (2016), Original source is American Time Use Survey; CEA calculations and columns do not sum to 1,440 minutes per day because some individuals do not report all minutes of each day.

Note: The column of “Prime-Age Men in the Labor Force” is not included in the CEA report. This column is produced by using the labor force participation rate for prime-age men.

Another important aspect of the issue is the duration. According to the Annual Social and Economic Survey (ASEC), in 2015 83 percent of the prime-age males not in the labor force had not worked at all in the previous year (CEA, 2016). During this period, they fall further behind the curve further in terms of skills and experience. Also, there might be discrimination against these men by employers (Ghayad, 2013). As the duration of non-working increases, they are less likely to re-enter the labor force.
Summary

Prime-age male labor force participation rates have been declining for more than fifty years. All demographic groups have had a lower participation rates compared to fifty years ago, but the pace of decline had been different across groups. There are important supply side factors-most of them structural- such as increasing school enrollment rates, illness-disability, retirement, changing social norms and family structure and increasing incarceration rate. On the demand side, change in the composition of final demand, changes in tastes and preferences, and technological change have reduced demand for low skilled and less-educated men. According to simple supply-demand diagrams, the decline in both employment and wage rates for less-educated men indicates that the decline in labor demand for these men has played the major role. In addition, the fact that groups with traditionally high unemployment rates, have had lower labor force participation rates, and have experienced steeper declines than other groups, indicates that weak labor demand conditions for these workers have pushed them out of labor force over time. As a result, real wages and relative wages of less-educated men have declined over time. The low and stagnant real wages for low-skilled men can trigger supply side factors, and lead to declines in the labor force participation, especially for those on the margins of the labor force.
2.2.2 Prime-Age Women

Women tend to have lower participation rates than men. Prime-age female labor force participation peaked in the early 2000s and lately has fluctuated around 75 percent.

**Figure 13: Prime Age Female Not in the Labor Force (%)**

![Graph showing female not in the labor force percentage from 1977 to 2017](ImageURL)

Source: BLS

Table 5 shows the major reasons for women not participating in the labor force. “Home responsibilities” was the major reason for three different years, however, it declined over time. Technological development in home appliances, changing social norms, and the increasing role of men in home responsibilities might decrease the share of women out of labor force due to home responsibilities. Shares of home responsibilities have also been affected by labor market conditions. During years with weak labor demand, more women leave the labor force for home responsibilities.

The second major factor is being ill or disabled. In 2014, 5.7 percent of prime-age female did not enter the labor force due to illness or disability. The number of women 25–54 years who received Social Security disability insurance benefits increased from 1.2 million (or 2.0 percent of women in this age group) in 2000 to 1.9 million (or 3.0 percent) in 2014 (Hipple, 2016). Also, share of “disability” increases during recession periods.
Third, in 2014 1.8 percent of prime-age women did not participate in labor force because of going to school. Similar to men, share of retired women increased in this period and was realized as 1.3 percent in 2014, more than doubled compared to 1991.

Educational attainment is also an important determinant of participating in the labor force. As educational attainment increases, the labor force participation rate increases. In 2014 the labor force participation rate was 50 percent for women with less than a high school diploma, and 85 percent for college graduates.

Table 5: Reasons for Not-Participating in the Labor Force for Prime-Age Female

<table>
<thead>
<tr>
<th></th>
<th>1991</th>
<th>2004</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total-Female</td>
<td>25.9</td>
<td>21.9</td>
<td>24.2</td>
</tr>
<tr>
<td>Home Responsibilities</td>
<td>15.9</td>
<td>14.3</td>
<td>14.3</td>
</tr>
<tr>
<td>Ill or disabled</td>
<td>5.5</td>
<td>4.8</td>
<td>5.7</td>
</tr>
<tr>
<td>Going to school</td>
<td>2.0</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Retired</td>
<td>0.6</td>
<td>0.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Other reasons</td>
<td>1.9</td>
<td>0.6</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Source: Lysy, The Structural Factors Behind the Steady Fall in Labor Force Participation Rates of Prime-age Workers, October 2016. The data was assembled by Steve Hipple from BLS.

Since the early 2000s, the decline in the labor force participation of prime-age women have been less severe than prime-age men. If we exclude home responsibilities, the reasons for non-participation have been very similar for women and men. Moreover, like men, demand side factors have affected women’s decisions on schooling, retirement, applying for disability benefits, and taking more home responsibilities.
1.3 Labor Force Participation for Older People

Labor force participation of people aged 55 years and over had declined to 29.3 percent in mid-1990s, and then increased until recently (Figure 14). It was around 40 percent in 2016, 10 percentage points higher compared to 1993.

Figure 14: Labor for Participation Rate for Aged 55 Years and Over, by Gender

The major reason for not participating for this age group is retirement, but the share of retired people has been reduced by the increase in the retirement age\(^\text{13}\). In addition, some older people work longer, at least until age 65,\(^\text{14}\) in order to hold their employer provided insurance (Leonesio et al., 2012). Educational attainment is also an important determinant of the employment and wages for older people (Burtless, 2013).

\(^{13}\) Based on CBO calculations. https://www.cbo.gov/publication/43834
\(^{14}\) The age when Medicare coverage begins
Employment-population ratio for men aged 55 and over increased by roughly 9 percentage points between 1993 and 2016. If employment-population ratio for men 55 and over were the same level in 1993, then this group would have roughly 3.7 million fewer jobs today.

According to BLS Labor Force Projections to 2024 (Toossi, 2015), the labor force participation rate of the youngest members of the group of the over 55, the 55-to-64-year-olds, will increase to 66.3 percent in 2024. However, the labor force participation rate of the group of the over 55 is projected to decline to 39.4 percent.
CHAPTER 2: EMPLOYMENT

The data show that in general the number of employed people decreases during recessions, and increases in other times (Figure 16). In addition, the structural factors lead to the relocation of workers and capital throughout the economy, and affect the size and composition of employment. However, burden of recessions and gains from recoveries and booms might be shared unevenly among genders, races, age groups, and industries. This section examines the employment level (number of employed$^{15}$ persons) and employment-population ratios by gender and race/ethnicity for the recession in 1981, and the Great Recession. In addition, I analyze the part-time employment for the Great Recession and the post-recession period.

Figure 16: Employment, 1976-2016 (millions)

Source: BLS

$^{15}$ According to the Current Population Survey “Employed Persons are persons 16 years and over in the civilian noninstitutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job. Excluded are persons whose only activity consisted of work around their own house (painting, repairing, or own home housework) or volunteer work for religious, charitable, and other organizations.”
2.1 The 1980s Recession

Between 1980 and 1982, the U.S. economy experienced its worst recessions, at the time, since the Great Depression. According to the National Bureau of Economic Research, two separate recessions occurred in this period. One was the first half of 1980, and the other lasted from July 1981 to November 1982. During the 1981-82 recession, the number of jobs reached its low in December 1982 while its initial peak was in April 1981.

In this period, total employment decreased by 2 million. But this burden was not shared equally among the demographic groups. The job losses were concentrated among youth and men. Young workers aged 16-19 years lost 1.1 million jobs, while workers aged 20 and over lost 853,000 jobs (Table 6). Both demand-and-supply side factors led to the decline in the employment of young workers. On the demand side, in addition to general demand conditions, firm hiring behavior contributed to negative outcomes (Forsythe, 2014). Solow (1964) analyzes such firm behavior:

When output declines or grows very slowly, it will generally be to an employer’s interest to lay off an unskilled or inexperienced worker and fill his place with a no-doubt underemployed-skilled employee, even at a higher wage; because when sales improve again, new unskilled help can be added with only small disruption to production, whereas, turnover among skilled and experienced personnel can be much more costly.

On the supply side, during recessions young workers reduce their labor supply. Krueger (2016) states that compared to older workers, school is more viable option for young workers, and thus, their labor force participation rates are more sensitive to the business cycles.

The 1981-1982 recession hit men harder than women. Men lost more than 2 million jobs, while women increased their jobs (Table 6). Table 7 shows that employment-population ratio declined more for young workers and men. The main reason is that, goods
producing industries were more affected than service sector, and goods producing industries had largely male employment (Goodmen et al., 1993). In addition, on the supply side, the increasing labor force participation of women contributed to the increase in female employment.

**Table 6: Change in Employment During the 1981-1982 Recession (thousands)**

<table>
<thead>
<tr>
<th></th>
<th>16 Years and Over</th>
<th>16-19 Years</th>
<th>20 Years and Over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>1981-4</td>
<td>43177</td>
<td>57879</td>
<td>101056</td>
</tr>
<tr>
<td>1982-12</td>
<td>43259</td>
<td>55773</td>
<td>99032</td>
</tr>
<tr>
<td>Change-Level</td>
<td>82</td>
<td>-2106</td>
<td>-2024</td>
</tr>
<tr>
<td>% Change</td>
<td>0.2</td>
<td>-3.6</td>
<td>-2.0</td>
</tr>
</tbody>
</table>

Source: BLS

**Table 7: Change in Employment-Population Ratios During the 1981-1982 Recession by Gender and Age (%)**

<table>
<thead>
<tr>
<th></th>
<th>16 Years and Over</th>
<th>20 Years and Over</th>
<th>16-19 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>1981-4</td>
<td>48.3</td>
<td>72.1</td>
<td>48.8</td>
</tr>
<tr>
<td>1982-12</td>
<td>47.5</td>
<td>68.0</td>
<td>48.2</td>
</tr>
<tr>
<td>Change pct.point</td>
<td>-0.8</td>
<td>-4.1</td>
<td>-0.6</td>
</tr>
</tbody>
</table>

Source: BLS

When we look at employment by race, Blacks were underrepresented in the employment pool, and overrepresented in the non-working pool with respect to their share in the labor force. Also, during recession periods, Blacks suffer more in terms of percentage change. Black men had 5 percent fewer jobs in December 1982 compared to April 1981, while in the same period the net job loss for White men was 2.6 percent (Table 8). In contrast, Hispanic men and men from other races achieved net employment gains in this period.
Female employment presents a different picture than male employment (Table 9). White women increased their employment, while Black women (0.8%) and Hispanic women (3.2%) lost jobs in this period. “Other races” (mostly Asian) were the least affected group, and both men and women in this group added new jobs.

### Table 8: Employment Level, Men 20 Years and Over, in the 1981-1982 Recession by Race and Ethnicity (thousands)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Total Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981-4</td>
<td>48077</td>
<td>4582</td>
<td>3298</td>
<td>1227</td>
<td>53886</td>
</tr>
<tr>
<td>1982-12</td>
<td>46803</td>
<td>4351</td>
<td>3352</td>
<td>1343</td>
<td>52497</td>
</tr>
<tr>
<td>Change-Level</td>
<td>-1274</td>
<td>-231</td>
<td>54</td>
<td>116</td>
<td>-1389</td>
</tr>
<tr>
<td>% Change</td>
<td>-2.6</td>
<td>-5.0</td>
<td>1.6</td>
<td>9.5</td>
<td>-2.6</td>
</tr>
</tbody>
</table>

Source: BLS

### Table 9: Employment Level, Women 20 Years and Over, in the 1981-1982 Recession by Race and Ethnicity (thousands)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Total Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981-4</td>
<td>34270</td>
<td>4393</td>
<td>2076</td>
<td>965</td>
<td>39628</td>
</tr>
<tr>
<td>1982-12</td>
<td>34763</td>
<td>4360</td>
<td>2010</td>
<td>1041</td>
<td>40164</td>
</tr>
<tr>
<td>Change-Level</td>
<td>493</td>
<td>-33</td>
<td>-66</td>
<td>76</td>
<td>536</td>
</tr>
<tr>
<td>% Change</td>
<td>1.4</td>
<td>-0.8</td>
<td>-3.2</td>
<td>7.9</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Source: BLS

#### 2.2 The Great Recession

The Great Recession is the most severe recession since the Great Depression. According to NBER, the recession started in December 2007 and ended in June 2009. However, the number of employed persons peaked in November 2007 and reached a low point in December 2009. In this period, 8.6 million US jobs disappeared, but the losses were not distributed evenly across demographic groups. Young male and female workers (16-19 years) lost nearly 25 percent of their jobs in this period, and the decline in youth employment continued after the recession ended to historically low levels (Figure 17).
In this period, similar to the 1981 recession, men were affected more seriously than women; but this time, women lost jobs too unlike the 1981 recession. Men lost 5.9 million jobs, which was 7.5 percent of total male employment in November 2007. Women lost 2.7 million jobs which was 3.9 percent of the jobs held by women in December 2007 (Table 10). Employment-population ratio showed a similar trend in this period (Table 11).

### Table 10: Change in Employment During the Great Recession by Age and Gender (thousands)

<table>
<thead>
<tr>
<th></th>
<th>16 Years and Over</th>
<th></th>
<th>16-19 Years</th>
<th></th>
<th>20 Years and Over</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>2007-11</td>
<td>68085</td>
<td>78509</td>
<td>146594</td>
<td>3100</td>
<td>2826</td>
<td>5926</td>
</tr>
<tr>
<td>2009-12</td>
<td>65409</td>
<td>72605</td>
<td>138014</td>
<td>2323</td>
<td>2126</td>
<td>4449</td>
</tr>
<tr>
<td>% Change</td>
<td>-3.9</td>
<td>-7.5</td>
<td>-5.9</td>
<td>-25.1</td>
<td>-24.8</td>
<td>-24.9</td>
</tr>
</tbody>
</table>

Source: BLS
Table 11: Employment Population Ratio During the Great Recession, by Age and Gender (%)

<table>
<thead>
<tr>
<th></th>
<th>16 Years and Over</th>
<th></th>
<th>20 Years and Over</th>
<th></th>
<th>16-19 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>2007-11</td>
<td>56.6</td>
<td>69.6</td>
<td>58.1</td>
<td>72.7</td>
<td>34.8</td>
</tr>
<tr>
<td>2009-12</td>
<td>53.5</td>
<td>63.3</td>
<td>55.4</td>
<td>66.4</td>
<td>26.2</td>
</tr>
<tr>
<td>Change pctl point</td>
<td>-3.1</td>
<td>-6.3</td>
<td>-2.7</td>
<td>-6.3</td>
<td>-8.6</td>
</tr>
</tbody>
</table>

Source: BLS

A number of factors explain the difference in job losses between men and women. The main factor is that men are concentrated in industries such as construction and manufacturing where job losses were most severe, while the majority of women work in more “recession-proof” industries such as education and health services (Taylor et al., 2011; Meade, 2012). However, according to Engemann and Wall (2010) the industry story is less than a complete explanation, because men were affected unevenly across all industries. These authors underline the demographic differences such as in the educational attainment of men and women. Another factor is that between November 2007 and December 2009, part-time jobs increased by 2.7 million, and women are more likely to work part-time (25 percent of women work part-time); 60-65% of the part-time jobs were held by women.

On the supply side, men’s employment might be affected negatively from declining male labor force participation. Between 2007 and 2009, labor force participation for prime-age male declined by 0.4 percentage points, while prime-age female labor force participation increased by 1 percentage point.

The Great Recession led to less employment for all racial and ethnic groups, but not equally. Similar to previous recessions, employment of Black men employment were
affected more than the employment of other races (Table 12). In terms of percentage change White men, were the least affected group by the recession.

Table 12: Employment Level, Men 20 Years and Over During the Great Recession, by Race and Ethnicity (thousands)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Total Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-11</td>
<td>62957</td>
<td>7255</td>
<td>12023</td>
<td>5471</td>
<td>75683</td>
</tr>
<tr>
<td>2009-12</td>
<td>58858</td>
<td>6573</td>
<td>11168</td>
<td>5048</td>
<td>70479</td>
</tr>
<tr>
<td>Change-Level</td>
<td>-4099</td>
<td>-682</td>
<td>-855</td>
<td>-423</td>
<td>-5204</td>
</tr>
<tr>
<td>% Change</td>
<td>-6.5</td>
<td>-9.4</td>
<td>-7.1</td>
<td>-8</td>
<td>-6.9</td>
</tr>
</tbody>
</table>

Source: BLS

For female employment, the picture is different. Hispanic women performed better during the recession and were the only group that had additional jobs in this period. This is the opposite of what happened during the 1981 recession for Hispanic women (Table 13).

Table 13: Employment Level, Women 20 Years and Over During the Great Recession, by Race and Ethnicity (thousands)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Total Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-11</td>
<td>52236</td>
<td>8163</td>
<td>7760</td>
<td>4586</td>
<td>64985</td>
</tr>
<tr>
<td>2009-12</td>
<td>50797</td>
<td>7804</td>
<td>7806</td>
<td>4485</td>
<td>63086</td>
</tr>
<tr>
<td>Change-Level</td>
<td>-1439</td>
<td>-359</td>
<td>46</td>
<td>-101</td>
<td>-1899</td>
</tr>
<tr>
<td>% Change</td>
<td>-2.8</td>
<td>-4.4</td>
<td>0.6</td>
<td>-2</td>
<td>-2.9</td>
</tr>
</tbody>
</table>

Source: BLS

2.3 Recovery form the Great Recession

The Great Recession was the longest and the most severe US recession in the postwar era. However, the recovery in jobs has been weaker than in previous recoveries. The employment recovery from the trough to the pre-recession peak took more than 80 months,
much longer than in previous recessions (Figure 18). In addition, the gains from the slow and weak recovery have not been shared evenly across demographic groups. The following paragraphs analyze the change in employment for two periods: December 2009-December 2016 and November 2007-December 2016. The first analysis shows the recovery from the trough, and the second shows the change in employment since the pre-recession peak.

**Figure 18: Change in Employment Since Pre-Recession Peak (thousands)**

![Chart showing change in employment since pre-recession peak](chart.png)

Source: BLS

### 2.3.1 Recovery from December 2009 to December 2016

In this period, total employment increased by 14.1 million. The groups that had lost the largest number of jobs had a slightly higher employment growth. For example, young workers and adult workers benefited from the recovery evenly. Adult employment increased by 10.2 percent, while youth employment rose by just 11.8 percent. Similarly, men’s employment grew faster than female employment, but the difference in growth rates between male and female employment was smaller than the difference in loss rate between men and women during the recession (Table 14).
Racial and ethnic groups also benefited differently from the recovery. Among men, White men with a 6.1 percent increase, had the lowest employment gain. On the other hand, the “other” group increased their employment at much higher rates. If we look only at non-Hispanic men, they added only 1 million jobs, a 2.1 percent increase in this period (Table 15).

**Table 14: Employment Level, Women, between 2009 and 2016 (thousands)**

<table>
<thead>
<tr>
<th></th>
<th>16 Years and Over</th>
<th>16-19 Years</th>
<th>20 Years and Over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>2009-12</td>
<td>65409</td>
<td>72605</td>
<td>138014</td>
</tr>
<tr>
<td>2016-12</td>
<td>71250</td>
<td>80861</td>
<td>152111</td>
</tr>
<tr>
<td>Change-Level</td>
<td>5841</td>
<td>8256</td>
<td>14097</td>
</tr>
<tr>
<td>% Change</td>
<td>8.9</td>
<td>11.4</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Source: BLS

Similar to White men, among all women, White women had the lowest employment growth, and the picture is worse for White women than for White men. Looking only at non-Hispanic White women, the employment growth rate was negative. Non-Hispanic White women are the only group that lost jobs between 2009 and 2016 (Table 16).

**Table 15: Employment Level Men, 20 Years and Over between 2009 and 2016 (thousands)**

<table>
<thead>
<tr>
<th></th>
<th>MEN-20 Years and Over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
</tr>
<tr>
<td>2009-12</td>
<td>58858</td>
</tr>
<tr>
<td>2016-12</td>
<td>62476</td>
</tr>
<tr>
<td>Change-Level</td>
<td>3618</td>
</tr>
<tr>
<td>% Change</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Source: BLS

*According to BLS, in 2015, the majority of Hispanics (89 percent) in the labor force were White, 4 percent were Black, and 1 percent were Asian.

Similar to White men, among all women, White women had the lowest employment growth, and the picture is worse for White women than for White men. Looking only at non-Hispanic White women, the employment growth rate was negative. Non-Hispanic White women are the only group that lost jobs between 2009 and 2016 (Table 16).
Table 16: Employment Level Women 20 Years and Over between 2009 and 2016 (thousands)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Non-Hispanic</th>
<th>Total Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-12</td>
<td>50797</td>
<td>7804</td>
<td>7806</td>
<td>4485</td>
<td>43850</td>
<td>63086</td>
</tr>
<tr>
<td>2016-12</td>
<td>52813</td>
<td>9410</td>
<td>10435</td>
<td>6537</td>
<td>43526</td>
<td>68760</td>
</tr>
<tr>
<td>Change-Level</td>
<td>2016</td>
<td>1606</td>
<td>2629</td>
<td>2052</td>
<td>-324</td>
<td>5674</td>
</tr>
<tr>
<td>% Change</td>
<td>4.0</td>
<td>20.6</td>
<td>33.7</td>
<td>45.8</td>
<td>-0.7</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Source: BLS

*According to BLS, in 2015, the majority of Hispanics (89 percent) in the labor force were White, 4 percent were Black, and 1 percent were Asian.

2.3.2 Change in Employment from the Pre-Recession Peak: November 2007-December 2016

Employment levels for all demographic groups have increased since the trough in December 2009. However, if we look at the change in employment from its pre-recession peak in November 2007, the recovery in employment seems even weaker compared to 2009-2016 period.

In December 2016, the US had 5.5 million more jobs (3.1 million of which are part-time) than in November 2007. Young workers were still nearly 1 million jobs short of their pre-recession peak, while adult employment had increased by 6.5 million. Female employment has also increased more than male employment (Table 17).

Table 17: Employment between 2007 and 2016, by Gender (thousands)

<table>
<thead>
<tr>
<th></th>
<th>16 Years and Over</th>
<th>16-19 Years</th>
<th>20 Years and Over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>2007-11</td>
<td>68085</td>
<td>78509</td>
<td>146594</td>
</tr>
<tr>
<td>2016-12</td>
<td>71250</td>
<td>80861</td>
<td>152111</td>
</tr>
<tr>
<td>Change-Level</td>
<td>3165</td>
<td>2352</td>
<td>5517</td>
</tr>
<tr>
<td>% Change</td>
<td>4.6</td>
<td>3.0</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Source: BLS
In terms of employment gains, there were important differences among races. Black men and Hispanic men had very similar employment growth (Table 18). Blacks had 1.1 million more jobs, and Hispanics had another 2 million jobs. Other races (mostly Asian) had added more than 2 million jobs, while only White men had lost 481,000 jobs in this period. Looking only at non-Hispanic White men, employment loss was 2.3 million, which is one of the most remarkable features of the last recession and recovery.

Table 18: Employment between 2007 and 2016, Men 20 Years and Over (thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Non-Hispanic White*</th>
<th>Total Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-11</td>
<td>62957</td>
<td>7255</td>
<td>12023</td>
<td>5471</td>
<td>52257</td>
<td>75683</td>
</tr>
<tr>
<td>2016-12</td>
<td>62476</td>
<td>8366</td>
<td>14059</td>
<td>7537</td>
<td>49963</td>
<td>78379</td>
</tr>
<tr>
<td>Change-Level</td>
<td>-481</td>
<td>1111</td>
<td>2036</td>
<td>2066</td>
<td>-2293</td>
<td>2696</td>
</tr>
<tr>
<td>% Change</td>
<td>-0.8</td>
<td>15.3</td>
<td>16.9</td>
<td>37.8</td>
<td>-4.4</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Source: BLS

*According to BLS, in 2015, the majority of Hispanics (89 percent) in the labor force were White, 4 percent were Black, and 1 percent were Asian.

Female employment had a similar outlook. White women remained behind the other groups. Non-Hispanic White women lost 1.8 million jobs. Female employment of Blacks, Hispanics and other races increased by 1.2 million, 2.7 million and 2 million respectively (Table 19).

Table 19: Employment between 2007 and 2016, Women 20 Years and Over (thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Non-Hispanic White*</th>
<th>Total Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-11</td>
<td>52236</td>
<td>8163</td>
<td>7760</td>
<td>4586</td>
<td>45330</td>
<td>64985</td>
</tr>
<tr>
<td>2016-12</td>
<td>52813</td>
<td>9410</td>
<td>10435</td>
<td>6537</td>
<td>43526</td>
<td>68760</td>
</tr>
<tr>
<td>Change-Level</td>
<td>577</td>
<td>1247</td>
<td>2675</td>
<td>1951</td>
<td>-1804</td>
<td>3775</td>
</tr>
<tr>
<td>% Change</td>
<td>1.1</td>
<td>15.3</td>
<td>34.5</td>
<td>42.5</td>
<td>-4.0</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Source: BLS

*According to BLS, in 2015, the majority of Hispanics (89 percent) in the labor force were White, 4 percent were Black, and 1 percent were Asian.
In sum, for all age groups, non-Hispanic Whites have lost 5.2 million jobs (5.1% of their jobs in November 2007), while Hispanics have gained 4.9 million jobs, other races have gained 2.4 million (2.4 million for Asians) and Blacks have added 2.3 million jobs between 2007 and 2016.

2.4 Employment Population Ratios

Different employment growth rates for subgroups might reflect differences in population growth. For example, Hispanic and Asian working age populations have been growing faster than other races, and their shares of the labor force have been increasing accordingly. In addition, employment-population ratios are affected by the relative weights of age groups, and younger and older age groups have lower employment rates than the prime-age population. Therefore, I will first examine the employment-population ratios for Whites, Blacks and Hispanics, and then look at the employment-population ratios for the prime-age population.

Employment-population ratios declined for all racial groups between November 2007 and December 2009. However, the recession affected Blacks and Hispanics more than Whites. The Great Recession hit Blacks hardest with respect to proportional changes in employment-population ratios, and Hispanics were hit hardest with respect to the share of population that lost jobs.

During the recovery period, employment-population ratios improved for all racial/ethnic groups, but at different rates. Blacks benefited most from the recovery. The employment-population ratio for Blacks increased by 5 percentage points between 2009 and 2016, and it was just 0.8 percentage point below their pre-recession peak in 2007 (57 percent versus 57.8 percent, Table 20). Employment-population ratios for Whites showed
a little progress, and increased to 60 percent in 2016 from 59.2 % in 2009, and still 3.6 percentage points below the level in November 2007. Asians’ employment-population ratio improved very little, and were still 3.9 percentage points below their 2007 peak. Also, in 2016, employment-population ratios were more close to each other compared to 2007 and 2009. The difference between the highest and lowest ratios declined to 4.9 percentage points in 2016 (Hispanic-Black), from 7.9 percentage points (Asian-Black) in 2009, and 7.2 percentage points (Asian-Black) in 2007.

Table 20: Employment-Population Ratio by Race (%, 16 years and over)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Asian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-11</td>
<td>63.6</td>
<td>57.8</td>
<td>64.7</td>
<td>65</td>
<td>62.9</td>
</tr>
<tr>
<td>2009-12</td>
<td>59.2</td>
<td>52</td>
<td>58.6</td>
<td>59.9</td>
<td>58.3</td>
</tr>
<tr>
<td>Change Percentage Pts.</td>
<td>-4.4</td>
<td>-5.8</td>
<td>-6.1</td>
<td>-5.1</td>
<td>-4.6</td>
</tr>
<tr>
<td>2007-11</td>
<td>63.6</td>
<td>57.8</td>
<td>64.7</td>
<td>65</td>
<td>62.9</td>
</tr>
<tr>
<td>2016-12</td>
<td>60</td>
<td>57</td>
<td>61.9</td>
<td>61.1</td>
<td>59.7</td>
</tr>
<tr>
<td>Change Percentage Pts.</td>
<td>-3.6</td>
<td>-0.8</td>
<td>-2.8</td>
<td>-3.9</td>
<td>-3.2</td>
</tr>
</tbody>
</table>

Source: BLS

Employment Population Ratios for Men

The employment to population ratio is historically higher for men than women, but the recession had affected the ratio for men more adversely than for women. The employment-population ratio for adult men declined from 72.7 percent to 66.4 percent in 2009, and it increased to 68.4 percent in 2016 (Table 21). Among adult men, Hispanic men have had the highest employment–population ratio, and Blacks have had the lowest employment–population ratio for many years. During the recession, employment-population ratios for Black men and Hispanic men declined more than the ratio for White men.
However, Black men have had the highest increase in employment-population ratios, while White men have had the lowest progress since 2009. As a result, among all groups, Black men have the lowest decline compared to 2007, but their employment-population ratio is still lower than the rates for Whites and Hispanics. Also, between 2007 and 2016, White men and Hispanic men have similar percentage decline (4.7% vs 4.6%) in their employment-population ratios, despite the fact that White men have lost jobs and Hispanic men have gained jobs. This reflects the difference in population growth between Whites and Hispanics.

**Table 21: Employment-Population Ratio for Men by Race and Age (%)**

<table>
<thead>
<tr>
<th></th>
<th>Men-20 Years and Over</th>
<th>Prime-age Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td>2007-11</td>
<td>73.4</td>
<td>65.1</td>
</tr>
<tr>
<td>2009-12</td>
<td>67.5</td>
<td>57.2</td>
</tr>
<tr>
<td>Change Percentage Pts.</td>
<td>-5.9</td>
<td>-7.9</td>
</tr>
<tr>
<td>2007-11</td>
<td>73.4</td>
<td>65.1</td>
</tr>
<tr>
<td>2016-12</td>
<td>68.7</td>
<td>62.5</td>
</tr>
<tr>
<td>Change Percentage Pts.</td>
<td>-4.7</td>
<td>-2.6</td>
</tr>
</tbody>
</table>

Source: BLS

The age structure of a population affects its employment-population ratios. I examine employment-population ratios for prime-age population. For prime-age males, the recession affected Black and Hispanic men more than White men. However, Hispanic men increased their employment more than Black men and White men during the recovery. As a result, prime-age White and Hispanic men experienced a similar decline compared to 2007 (Table 21).
Employment Population Ratios for Women

For women, there is a different picture. First, employment population ratios for women are very close to each other among races unlike men. Second, among adult women, Black women had a higher employment-population ratio than White and Hispanic women in 2007. However, the recession hit Black women hardest, and their employment-population ratio declined by 4.3 percentage points, while White and Hispanic women experienced a relatively low decline (2.3 percentage points and 2.4 percentage points) between 2007 and 2009.

During the recovery, similar to adult men, Black women have performed better than other groups. The employment-population ratio for Black women increased by 3.5 percentage points, while the ratio for Hispanic women increased 2.5 percentage points. For White women, the employment-population ratio continued to decline, and as a result, White women had the lowest employment-population ratio in 2016 for the first time in the history. Another important thing is that among all groups, Hispanic women became the only group that increased their employment-population ratio in 2016 compared to 2007 (from 55.2 percent to 55.4 percent).

Looking at only prime-age women, the Great Recession resulted in similar decline in the employment-population ratios for all groups. However, during the recovery, prime-age Black women have been affected more positively than White and Hispanic prime-age women. As a result, the employment-population ratio for prime-age Black women exceeded the ratio of prime-age White-women. Among prime-age women, White women are the only group with a lower employment ratio in 2016 compared to 2007 (Table 22).
In addition to slow recovery, employment growth has been concentrated in a limited number of large areas between 2007 and 2016. I examined employment levels in the 30 largest Metropolitan Statistical Areas (MSAs). Between November 2007 and November 2016, employment increased by 5.5 million nationwide. However, increase in the employment of the 30 largest MSAs was 5.6 million, slightly more than the total of job creation nationwide in the same period (Table 23). These statistics show that in this period, all the additional employment was created in these 30 areas, and the rest of the US did not generate any additional jobs in total. Accordingly, in 2007, the 30 largest MSAs had a 45 percent share of national labor force, and 45 percent of national employment. The share of the 30 largest MSAs of the labor force and the national employment increased to 47 percent and 47.1 percent respectively in 2016.

### Table 22: Employment-Population Ratio for Women by Race and Age (%)

<table>
<thead>
<tr>
<th></th>
<th>Women-20 Years and Over</th>
<th>Prime-age Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td>2007-11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Percentage Pts.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: BLS

#### 2.5 Regional Differences in the Recovery

In addition to slow recovery, employment growth has been concentrated in a limited number of large areas between 2007 and 2016. I examined employment levels in the 30 largest Metropolitan Statistical Areas (MSAs). Between November 2007 and November 2016, employment increased by 5.5 million nationwide. However, increase in the employment of the 30 largest MSAs was 5.6 million, slightly more than the total of job creation nationwide in the same period (Table 23). These statistics show that in this period, all the additional employment was created in these 30 areas, and the rest of the US did not generate any additional jobs in total. Accordingly, in 2007, the 30 largest MSAs had a 45 percent share of national labor force, and 45 percent of national employment. The share of the 30 largest MSAs of the labor force and the national employment increased to 47 percent and 47.1 percent respectively in 2016.

16 The Office of Management and Budget have revised the boundaries of some areas, but the effects of these changes are expected to be small.
17 Areas are ordered based on their labor force size instead of population. 27 of the 30 largest MSAs in 2016 was in the list in 2007.
I compare the 2007-2016 period with the 1999-2007 period. Table 24 shows that in the 1999-2007 period, total employment increased by 12.3 million, and only 3.8 million jobs (31.3 percent of additional jobs) were created by the 30 largest MSAs. As a result, the share of the 30 largest MSAs of the employment declined from 46.3 percent in 1999 to 45 percent in 2007. The employment growth was distributed more evenly among the areas in 1999-2007 period.

Table 24: Labor Force and Employment Level of the 30 Largest MSAs, in the 1999-2007 Period

<table>
<thead>
<tr>
<th>Year</th>
<th>Labor Force</th>
<th>Share</th>
<th>Employment</th>
<th>Share</th>
<th>Overall Labor Force</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td></td>
<td>Level</td>
<td></td>
<td>Level</td>
<td></td>
</tr>
<tr>
<td>1999-11</td>
<td>64,664</td>
<td>46.2</td>
<td>62,179</td>
<td>46.3</td>
<td>140,025</td>
<td>134,309</td>
</tr>
<tr>
<td>2007-11</td>
<td>69,265</td>
<td>45.0</td>
<td>66,026</td>
<td>45.0</td>
<td>153,835</td>
<td>146,595</td>
</tr>
<tr>
<td>Change-Level</td>
<td>4,601</td>
<td>-1.2</td>
<td>3,846</td>
<td>-1.3</td>
<td>13,810</td>
<td>12,286</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

There are a number of possible explanations for the concentration in the 2007-2016 period. First, the recovery from the last recession was weak, and the employment growth was not strong. It can be claimed that recovery starts in the largest MSAs, and later, it spreads to the rest of the country. However, the data does not support this idea. The average of the unemployment rates for the largest 30 MSAs, and the overall unemployment rate are
not very different (4.55 percent versus 4.65 percent). In addition, although the national employment growth was lower in the second period, the 30 largest MSAs created more employment compared to the first period. Second, large areas might have become more attractive to both employers and employees compared to small areas. Large metro areas can provide larger market, and diverse labor for firms, and at the same time, they can provide more social and economic opportunities for workers. Berube (2016) states that employment rates across regions depend on educational differences, but men who have no more than a high-school degree have higher employment ratios in large metro areas (64 percent) than men with similar education in smaller metro areas (62 percent), because larger economies with greater economic diversity might increase the demand for less-skilled workers.

2.6 Part-Time Employment

Part-time employment with its size, causes and consequences is one important labor market issue. An individual is counted as part-timer if he or she works fewer than 35 hours per week (BLS). There are two kinds of part-time jobs; voluntary (for non-economic reasons) and involuntary (for economic reasons). Non-economic reasons include education, child-care, health related problems and other personal preferences. On the other hand, involuntary part-timers want to work full time, but cannot find a full-time job. The number of part-time employment was on an increasing trend after 2000, and this trend accelerated during the recession. However, with the recovery in the labor markets, the number of part-time employment has fluctuated in a band since 2010.

The Great recession resulted in a huge jump in the number of part-time jobs. Compared to November 2007, the number of part-time jobs increased by 3.2 million, and
reached to 27.9 million in 2016 (Figure 19). As of 2016, 5.6 million workers had part-time jobs for economic reasons, and 21.1 million part-time employment was for non-economic reasons. The dynamics of voluntary and involuntary part-time employment are different, therefore, I separately analyze the voluntary and involuntary part-time employment.

**Figure 19: Part-Time Employment 1994-2016 (thousands)**

Source: BLS

### 2.6.1 Part-Time for Economic Reasons (Involuntary)

The number of involuntary part-time employment almost doubled during the last recession, and peaked at 9.2 million in September 2010. With the economic recovery, it declined to 5.6 million in 2016, but was still above its pre-crisis level (Figure 20). In 2016, 21 percent of all part-time workers have economic reasons compared to 19 percent in 2007. In other words, 1 million more worker worked for part-time involuntary compared to 2007.
Women have generally higher share than men, but this shows a counter cyclical pattern. During recession periods, the share of men in involuntary part-time employment increased, and exceeded the share of women. During recovery periods, men’s share declined. Looking at the age distribution, the share of people over 55 years old has increased, while the share of teenagers has declined over time. Especially during recession periods, workers with more experience and education might get the limited number of jobs, and young and less-educated workers are less likely to be employed, even in part-time jobs.

Black men, Hispanic men and Asian men are over-represented, while White men are under-represented in involuntary part-time employment pool with respect to their shares in the labor force\(^\text{18}\). For female part-timers, Black women and Hispanic women are

\(\text{18 I use the BLS annual average tables for demographics, total number of voluntary and involuntary employment are different than the seasonally adjusted monthly BLS numbers.}\)
over-represented while Asian women are underrepresented in involuntary part-time employment pool.

Part-time employment for economic reasons shows a counter cyclical pattern, and is affected positively by recessions. But during recovery and expansion periods, it declines. In addition to cyclical changes, changes in the industrial composition of employment from manufacturing towards service could increase the share of involuntary part-time work (Cajner et al, 2014). I estimate the model below to test how overall unemployment rate affects the part-time employment rates for 1994-2016 period.

**Equation 1:**

\[
\text{Part-Time Employment for Economic Reasons (\% of Labor Force)} = a + b \text{ General Unemployment} + c \text{ Time Trend}
\]

Figure 21 shows that part-time employment for economic reasons as a percentage of labor force increases as unemployment rate rises.

**Figure 21: Involuntary Part-Time Employment Rate and Overall Unemployment Rate**

![Graph showing the relationship between involuntary employment and overall unemployment rate with R² = 0.8621](image)

Source: Author’s calculation based on BLS data.
Regression results show that a one percentage point increase in the overall unemployment rate will increase the share of involuntary part-time employment in the labor force by 0.6 percentage point (Table 25). During recession periods, employers generally reduce either the number of workers or number of hours per worker or both. And the number of full time jobs reduces significantly, and employees have to work part-time even though they want full time jobs.

In addition to the shift from full time to involuntary part-time employment, Cajner et al. (2014) found that about a third of the increase in involuntary part-time employment during the last recession was related to the shift from voluntary part-time to involuntary part-time employment. There might be a number of reasons behind this shift. First, during recessions voluntary part-time employers might experience a decline in their wages and/or working hours. In addition, they feel that economic reasons are the major factor for their part-time employment rather than non-economic reasons such as education and child-care. This is a psychological effect, and might create upward biased. More importantly, voluntary part-timers might want to work full-time or longer hours during recessions, because some household members might become unemployed.

Table 25: Regression Results for Equation 1

<table>
<thead>
<tr>
<th>Unemployment Rate time</th>
<th>0.62</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.002</td>
</tr>
<tr>
<td>N</td>
<td>276</td>
</tr>
<tr>
<td>Period</td>
<td>1994-2016</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.891</td>
</tr>
</tbody>
</table>

In addition, the ratio of involuntary employment to unemployment has had an upward trend (Figure 22). It may reflect the role of structural factors in the rise in
involuntary part-time employment. The shift in employment toward service industries may increase the share of involuntary part-time employment (Yellen, 2014). In addition, technology has enabled firms to monitor the demand patterns more accurately and employers can use part-time employment in a more cost effective way (Valletta et al., 2015).

Figure 22: Ratio of Involuntary Part-Time Employment to Unemployment, 2000-2016

![Graph showing the ratio of involuntary part-time employment to unemployment from 2000 to 2016]

Source: Author’s calculation based on BLS data.

2.6.2 Part-Time for Non-Economic Reasons

Voluntary part-time employment is not as a bad thing. It provides opportunities for those who are not able to work full time due to barriers or personal preferences. Also, voluntary part-time employment provides flexibility for workers to balance work and other areas in their lives. Voluntary employment is the major part of the part-time employment. In 2016, 21.3 million workers are voluntary part-timers, which is 76 percent of the total
part-timers, and 13.3 percent of the total labor force. The voluntary part-time employment increased by 1.7 million between 2007 and 2016.

**Figure 23 : Voluntary Part-Time Employment Ratio, 1994-2016 (of Labor Force, %)**

Voluntary part-time employment is mainly affected by structural changes such as technology, aging population, increasing educational attainment and fertility. However, voluntary part-time employment is also affected by the economic conditions.

I estimate the model below to see how the unemployment rate (general demand) affects part-time employment for noneconomic reasons.

**Equation 2:**

\[
\text{Part-time Employment for Non-economic Reasons (\% of Labor Force)} = a + b \text{ General Unemployment} + c \text{ Time Trend}
\]

Figure 24 shows that there is a negative correlation between unemployment level and voluntary part-time employment as a percentage of labor force. As unemployment increases, voluntary part-time employment rate declines.
Regression results show that a one percentage point increase in the overall unemployment rate will decrease part-time employment rate for non-economic reasons by 0.24 percentage points (Table 26). Contrary to involuntary part-time employment, voluntary part-time employment shows a cyclical pattern. In other words, during the recession the share of voluntary part-time employment in the labor force declined, and it increased with the recovery. One possible explanation is that similar to full time jobs, some of voluntary part-time jobs disappeared during economic downturns. Second, there might be a shift from voluntary part-time employment to involuntary employment. Another explanation is that young workers might exit from the labor force during recessions, and other age groups who are less likely to be voluntary part-time workers increase their share in part-time employment (Valletta and Catherine van der List, 2015).
Table 26: Regression Results for Equation 2

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate</td>
<td>-0.24</td>
</tr>
<tr>
<td>time</td>
<td>-0.002</td>
</tr>
<tr>
<td>N</td>
<td>276</td>
</tr>
<tr>
<td>Period</td>
<td>1994-2016</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.6954</td>
</tr>
</tbody>
</table>

The demographic distribution\(^{19}\) of voluntary part-time employment is different than the distribution of involuntary employment. First of all, the share of women (66 percent) is higher than its share in involuntary part-time employment (50 percent). Second, the share of Whites in voluntary part-time employment (81 percent) is higher than its share in involuntary part-time employment (73-74 percent), and Blacks and Hispanics have lower shares compared to involuntary part-time employment.

Compared to 2007, women and Whites had lower shares in 2016. Looking at the age distribution, in the 2007-2016 period, the shares of young workers and prime-age workers declined, while workers aged 55 years and over increased their share. The share of prime-age men increased slightly in this period.

Between 2007 and 2016, the share of married women declined to 31 percent from 36 percent, while the share of single women increased to 35.1 percent from 33 percent. There are two important reasons for this development. First, the share of married women in the labor force has declined over time. Second, married women are less likely to work part-time in 2016 (25.4 percent) compared to 2007 (27.8 percent).

There are a number of reasons for voluntary part-time employment. According to BLS, education (29 percent) is the most important reason for voluntary part-time employment. I use the BLS annual average tables for demographics, total number of voluntary and involuntary employment are different than the seasonally adjusted monthly BLS numbers.

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\(^{19}\) I use the BLS annual average tables for demographics, total number of voluntary and involuntary employment are different than the seasonally adjusted monthly BLS numbers.
employment. Family responsibilities and child care follow education with a 26 percent share. However, 28 percent of the voluntary employment, 3.7 percent of labor force, have “all other reasons” in 2016 (3.2 percent of the labor force in 2007). This unexplained part has been growing regularly, and has a significant share in voluntary part-time employment (Figure 25). There might be some possible explanations for this unexplained part. First, it might reflect the change in working types as a result of technological development. Employees can use their time efficiently, and accomplish their responsibilities in a shorter time, and make money without having a full-time job. Second, they might have sufficient wealth (from either their own savings or inheritance) to survive without a full time job. Also, some individuals may want to spend more time on leisure or other enjoyable activities for noneconomic reasons. These people might also give more value to their freedom and flexibility. Whatever the reason, this is an important part of voluntary part-time employment, and it is growing.

Figure 25: Part-Time Employment for All Other Non-economic Reasons (millions)

Source: BLS
CHAPTER 3: UNEMPLOYMENT

According to the National Bureau of Economic Research\(^{20}\), the US has experienced 11 recessions in the postwar era. The Great Recession began in December 2007 and ended in June 2009. The national unemployment\(^{21}\) rate peaked at 10 percent in October 2010. This was the nation’s highest unemployment rate since 1983.

However, the recovery from the Great Recession has been very weak; unemployment remained high for an exceptionally long time after recession ended. It took more than eight years for the unemployment rate to return back to its pre-recession level. In addition, the share of long-term\(^{22}\) unemployed in the labor force rose to unprecedented levels compared to previous post World War II recessions, and it has remained high.

The high and persistent unemployment rates and historically high levels of long-term unemployment raise the key question: Whether the US is suffering from increasing structural or cyclical unemployment. Cyclical unemployment increases or decreases over the business cycle. However, there are a number of definitions of structural unemployment.\(^{23}\) Structural unemployment is mostly related to mismatch of workers’ skills and the skills required for the available jobs, and it persists even if the economy grows. The answer to the question is important, because it helps policy makers select appropriate remedies. If unemployment is cyclical, policies that boost demand can reduce it. But if unemployment is structural, fiscal and monetary expansions are less effective.

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\(^{20}\) http://www.nber.org/cycles.html

\(^{21}\) I use the national unemployment, overall unemployment and general unemployment interchangeably.

\(^{22}\) Workers unemployed for 27 weeks or longer

\(^{23}\) See Lazear and Spletzer (2012) for alternative definitions of structural unemployment.
**Question: Was the Change in Unemployment Structural?**

The industrial structure of the US economy has been changing for decades due to technological change, globalization, and changes in the preferences of consumers. Also, demographic factors have changed the size and the composition of labor markets. There has always been structural unemployment in the US economy. But, the question now is whether structural unemployment has been increasing over time.

There are a number of ways to analyze this question. Many studies, for example examine the changes in the Beveridge curve which shows the relationship between the unemployment rate and vacancy rate (Diamond, 2013; Pissarides, 2013). However, Solow (1964) used a different approach. According to Solow (1964), “the hallmark of rising structural unemployment is a tendency for unemployment to become more concentrated in certain groups of the labor force or sectors of the economy.” In this chapter, I examine whether the incidence of unemployment has been increasingly concentrated among certain demographic groups or regions by using correlation coefficients and regression analysis.

**3.1 Unemployment by States**

States might have different industrial and employment structures, and there have been differences in unemployment rates among states. Also, some states can be more sensitive to demand shocks than other states due their industrial structures. I analyze whether unemployment has become more concentrated in some states, and whether the regional unemployment rates have moved together with the overall unemployment rate, and their unemployment rates approach the overall unemployment rate. If the unemployment rates

---

24 I use the monthly BLS data for regression analysis and other analysis unless otherwise stated.
for 50 states and DC go up and down together, then increasing unemployment rates indicate a general problem rather than a regional problem. If state unemployment rates deviate from the national unemployment rate over time, that is if the unemployment rates for some states increase or remain high while other regions decline, then, this is an indicator of increasing structural unemployment (Solow, 1964). I test this hypothesis by using the correlation coefficients among the regional unemployment series\textsuperscript{25}.

I calculate the correlation coefficients for 4 different 10-year periods, and then compare the periods. Pair correlations between the unemployment rates for each state and the national unemployment rate range above 0.90 in the 2006-2015 period for all states, except for North Dakota and Minnesota. The average of the correlation coefficients of 50 states and DC in the 2006-2015 period increased to 0.96 from 0.72 in 1996-2005 period (Figure 26). Also, unemployment rates have converged to the national unemployment rate in the last period compared to previous periods. The results show that state unemployment rates have been highly correlated with the general unemployment level, and they moved together. This supports the conclusion that recent changes in state unemployment rates have been more related to the general demand rather than structural factors.

\textsuperscript{25} Correlation coefficients take a value between -1 and 1. I first calculated the correlations between the annual unemployment rate of a state and the general unemployment rate for 50 states and DC. Then, I took the average of these correlations.
Figure 26: Average of the Correlations between States and National Unemployment Rates

Source: Author’s calculation based on BLS data

### 3.2 Unemployment by Race and Ethnicity

Typically, Blacks and Hispanics have higher unemployment rates than Whites. The unemployment gaps between races may stem from fundamental reasons such as the differences in educational attainment, job experience, criminal records, social capital, and discrimination. In addition to these structural factors, unemployment rates for Whites, Blacks and Hispanics follow a cyclical pattern, but the paces of their patterns are not the same. During recessions, unemployment rates for Blacks and Hispanics increase more than Whites, and they show a better performance than Whites during recoveries. Many studies find that unemployment rates for Blacks, especially for Black men, are more sensitive to short-run cyclical fluctuations than unemployment rates for White men (Freeman, 1973; Holzer, 2009; Couch et al., 2016).
In addition to estimating correlation coefficients, with the general unemployment rate the same at different dates, I examine changes in racial unemployment rates. In other words, I assume that general pressure of demand is about the same for all dates. If the racial unemployment rates are about the same in these periods or there is no concentration in some groups, it indicates that structural unemployment has not significantly changed. However, if unemployment rates are higher for or more concentrated in certain categories in the later periods, then structural unemployment might have increased (Solow, 1964).

For example, the four dates in Table 27 have same overall unemployment rate of 6.3 percent. However, unemployment rates for Hispanics and Blacks decline over time, while white unemployment rate remains relatively stable. But also, over time, the unemployment gaps between races narrow and unemployment rates for Blacks, Hispanics and Asians converge to the general unemployment rate. Thus, in recent years, the unemployment has been less concentrated in Blacks, Hispanics and Asians compared to previous periods.
Table 27: Unemployment Rates by Race/Ethnicity and Overall Unemployment Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Overall</th>
<th>Hispanic</th>
<th>White</th>
<th>Black</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-01-01</td>
<td>6.3</td>
<td>8.7</td>
<td>5.5</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>1987-04-01</td>
<td>6.3</td>
<td>8.9</td>
<td>5.4</td>
<td>12.9</td>
<td></td>
</tr>
<tr>
<td>2003-06-01</td>
<td>6.3</td>
<td>8.3</td>
<td>5.5</td>
<td>11.5</td>
<td>7.4</td>
</tr>
<tr>
<td>2014-05-01</td>
<td>6.3</td>
<td>7.7</td>
<td>5.4</td>
<td>11.4</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

However, this approach has two disadvantages that should be taken into account when interpreting the results;

1- Even if the racial unemployment rates remain same, the overall unemployment rate can change due to changes in the population weights of races. For example, the share of Whites has been declining, while the share of Hispanics has been increasing. Although, unemployment rates for Whites, Hispanics, Blacks and Asian declined in May in 2014 compared to June 2003, the overall unemployment rate remained unchanged.

2- The strength of the approach depends on whether the overall unemployment rate is a good indicator for general demand. This approach does not take labor force participation rates into account.

As a second way, correlation coefficients between unemployment rates of races and the national unemployment rates show that racial unemployment rates are highly correlated with the general unemployment, and they have the highest value in the 2007-2016 period compared to other periods (Table 28).
A third way to look at the effect of the overall unemployment rate on unemployment rates for races and ethnicities is regression analysis. The independent variable is the overall unemployment rate. I estimate the following two models by using monthly BLS data.

\[
\text{Model 3: } \frac{\text{Black-White gap}}{\text{National Ut}} = f(U_t, \text{time})
\]

\[
\text{Model 4: } \frac{\text{Black Ut}}{\text{White Ut}} = f(U_t, \text{time})
\]

Equation 3: Unemployment Gap/ National Unemployment Rate= a+ b National Unemployment Rate+ c Time Trend

Equation 4: Black Unemployment Rate/ White Unemployment Rate= a+ b National Unemployment Rate+ c Time Trend

Freeman (1973) states that unemployment rates of Blacks and Whites proportionately respond to short-run deviations of output from trend. The ratio of the unemployment rate for Black to the unemployment rate for White has a mean of 2.18 over 45 years. There is a general tendency to assume a ratio of 2:1 (Holzer, 2009; Solow, 1964). However, the Black/White ratio has a declining trend. In other words, Black and White unemployment rates have converged in recent years compared to the 1980s and the 1990s.

The estimated results in table 29 and figure 28 show that unemployment rate and time trend has negative signs, but R-squared (or correlation) is weak. And this correlation becomes weaker, if the unemployment rate is less than 8 percent. This indicates that the

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>0.959</td>
<td>0.862</td>
<td>0.628</td>
<td>0.991</td>
</tr>
<tr>
<td>White</td>
<td>0.997</td>
<td>0.994</td>
<td>0.990</td>
<td>0.998</td>
</tr>
<tr>
<td>Black</td>
<td>0.968</td>
<td>0.845</td>
<td>0.899</td>
<td>0.982</td>
</tr>
<tr>
<td>Average</td>
<td>0.975</td>
<td>0.900</td>
<td>0.839</td>
<td>0.991</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data
ratio of Black/White unemployment is not increasing over the business cycle, and the change in the general unemployment rate has little or no effect on this ratio. Also, the ratio has a declining time trend. This might be reflecting partly the differences in the labor force participation rates.

**Table 29: Regression Results**

<table>
<thead>
<tr>
<th></th>
<th>Ratio of Black/White (Black-White)/UR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate</td>
<td>-0.04</td>
</tr>
<tr>
<td>time</td>
<td>-0.001</td>
</tr>
<tr>
<td>N</td>
<td>540</td>
</tr>
<tr>
<td>Period</td>
<td>1971-2016</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.2675</td>
</tr>
</tbody>
</table>

Figure 28: Black/White Unemployment Ratio and National Unemployment Rate (%)

Source: Author’s calculation based on BLS data

It is certain that when the economy weakens, the unemployment rate for Blacks rises more than for Whites in terms of absolute percentage points. But, the relative change of White unemployment is higher than the relative change of Black unemployment. As a result, as the general unemployment rate rises, the ratio of Black/White unemployment
decreases. But, the correlation is very weak. We have similar results for the ratio of the Black-White unemployment gap to unemployment gap. The ratio decreases as the unemployment rate increases, but the correlation is low.

3.3 Unemployment by Gender

Between 1980 and 2007, men and women had very close unemployment rates. The average difference between men’s and women’s unemployment rate was 0.1 percentage points in this period. However, recessions hit men harder than women. The unemployment gap between men and women reached to 2.6 percentage points in May 2009, its peak for over forty years (Figure 29). This is one of the unique characteristics of the last recession.

Figure 29: Unemployment Rates by Gender (%)

Source: Author’s calculation based on BLS data

One of the most important reasons for this pattern is that job losses were concentrated in male dominant sectors such as construction and manufacturing. However, according to Engemann and Wall (2010), this is less than a complete explanation, because men were affected more than women across all industries. Indeed, other factor may also affect the unemployment gap between males and females such as differences in educational attainment and criminal records. Another reason is that a large percentage of men who
entered the labor market did not find a job, and were counted as unemployed in the last recession compared with women. Male labor force entrants are generally more likely than female entrants to become unemployed, but the gap between men and women widened in the last recession (Figure 30).

**Figure 30: The Ratio of Flows from NILF to Unemployment to Flows from NILF to Employment**

![Graph showing the ratio of flows from NILF to unemployment to flows from NILF to employment]

Source: Author’s calculation based on BLS data

I estimate the following models to test the effect of the general unemployment rate on the ratio of unemployment rates for men and women to general unemployment for the 1976-2016 period.

**Equations:**

- Male \( UR/UR = a + b \) General Unemployment Rate + c Time Trend
- Female \( UR/UR = a + b \) General Unemployment Rate + c Time Trend
- (Male \( UR \) - Female \( UR \))/UR = a + b General Unemployment Rate + c Time Trend

The regression results show that the male unemployment rate is more sensitive to the general unemployment rate than the female rate (Table 30). As the overall
unemployment rate increases, male unemployment rates increase disproportionately faster than female unemployment rates.

Table 30: Regression Results for Male and Female Unemployment

<table>
<thead>
<tr>
<th></th>
<th>Men UR/UR</th>
<th>(Women UR) /UR</th>
<th>(Men-Women) /UR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate time</td>
<td>0.01</td>
<td>-0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>N</td>
<td>492</td>
<td>492</td>
<td>492</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.5401</td>
<td>0.5171</td>
<td>0.5334</td>
</tr>
</tbody>
</table>

Almost always throughout the 1976-2016 period, men had a higher unemployment rate than women when the overall unemployment rate was greater than 8 percent. On the other hand, when the overall unemployment rate was less than 5 percent, the gender gap is almost zero on average, and fluctuates in a very narrow band (Figure 31 and Table 31).

Figure 31: Gender Gap/Unemployment Rate and the Overall Unemployment Rate

Source: Author’s calculation based on BLS data

---

26 The number of months with an unemployment rate above 8 percent is 69 between 1976 and 2016, and women had a higher unemployment rate than men for only 2 times among these months.
Table 31: Summary Statistics of the Gender Gap for Different Level of Unemployment Rates for 1976-2016

<table>
<thead>
<tr>
<th>Unemployment Rate (%)</th>
<th>Number of Months</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Gap</td>
<td>5</td>
<td>-0.04</td>
<td>0.23</td>
<td>-0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Gender Gap greater than 8</td>
<td>69</td>
<td>1.10</td>
<td>0.80</td>
<td>-0.3</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

3.4 Unemployment by Educational Attainment

BLS data show that unemployment decreases as educational attainment rises. According to Mincer (1991), more educated workers have stronger attachments to their employers, and a greater chance of finding a job when they leave the firm; thus unemployment risk is lower for workers with more education. In addition, technology and globalization have led to shifts in the composition of industry and the labor force in the US economy. This process mainly rewards more educated workers, and people with less education suffer most. In addition to these structural changes, less-educated workers are usually hit harder by recessions. According to Solow (1964), “It is natural that when labor markets are soft, employers should insist and be able to insist on hiring college graduates for positions which do not really require so much education.”

Grouping workers by education level, people with more education have lower unemployment rates than those with less education. Table 32 shows that workers without high school diploma have on average 50 percent higher unemployment rates than the general unemployment level, while unemployment rates for college graduates are on average less than the half of the national unemployment rate between 1992 and 2016.
Table 32: Summary Statistics of the Ratios of Unemployment Rates to the General Unemployment Rate, (1992-2016)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School</td>
<td>1.54</td>
<td>0.08</td>
<td>1.29</td>
<td>1.79</td>
</tr>
<tr>
<td>High School</td>
<td>0.94</td>
<td>0.08</td>
<td>0.78</td>
<td>1.15</td>
</tr>
<tr>
<td>Some College</td>
<td>0.78</td>
<td>0.08</td>
<td>0.56</td>
<td>0.94</td>
</tr>
<tr>
<td>College</td>
<td>0.46</td>
<td>0.05</td>
<td>0.33</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

However, unemployment rates of educational groups are highly correlated with each other. The national unemployment rate, and the average of the pair correlations increased to 0.98 in 2007-2016 period from 0.93 in 1997-2006 period (Table 33).

Table 33: Correlation Matrix by Educational Attainments, 1992-2016

<table>
<thead>
<tr>
<th></th>
<th>Less than High School</th>
<th>High School</th>
<th>Some College</th>
<th>College</th>
<th>Overall Unemployment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>0.9558</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some College</td>
<td>0.9482</td>
<td>0.9815</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>0.9129</td>
<td>0.9462</td>
<td>0.9534</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Overall Unemployment Rate</td>
<td>0.9842</td>
<td>0.9775</td>
<td>0.9766</td>
<td>0.9458</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

In order to see the effects of general unemployment rates on the groups’ unemployment rates, I estimate the following equations for four educational attainments.

**Equation 5:** Unemployment Rate for Educational Attainment/ General Unemployment = a + b General Unemployment + c Time Trend

Table 34 indicates that the effect of the overall unemployment rate is negligible for the ratio for college graduates, and not statistically significant for people with no high school diploma. Both models have very low R-squared. The coefficients for high school graduates and those with some college education are not economically significant. For
example, if the general unemployment rate increases from 5 percent to 10 percent, rates increase by only 0.1, which is not a big effect compared to their means. The regression results also indicate that the unemployment rates of high school graduates and individuals with some college education are more sensitive to general demand changes, and have higher time trends compared to other groups. The higher trend for these educational attainments in the middle might be reflecting the polarization of the labor market.

**Table 34: Regression Results for Educational Attainments**

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Coefficients</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unemployment Rate</td>
<td>time</td>
<td>R-Squared</td>
</tr>
<tr>
<td>Less than High School</td>
<td>0.0017 n.s.</td>
<td>-0.0003</td>
<td>0.0923</td>
</tr>
<tr>
<td>High School</td>
<td>0.0201</td>
<td>0.0006</td>
<td>0.7791</td>
</tr>
<tr>
<td>Some College</td>
<td>0.0239</td>
<td>0.0006</td>
<td>0.7846</td>
</tr>
<tr>
<td>College</td>
<td>0.0060</td>
<td>0.0003</td>
<td>0.3264</td>
</tr>
</tbody>
</table>

Despite the structural differences in unemployment rates among educational attainments, the results show that changes in the unemployment rates of educational groups are highly correlated with the change in the general unemployment.

**3.5 Unemployment by Age**

Unemployment rates traditionally vary with age. The youngest group in the labor force consistently has the highest unemployment rates. And while unemployment increased among all age groups during the Great Recession, the youngest workers were hit exceptionally hard.

There are a number of explanations why young workers suffer more when general demand is weak. First, young individuals generally have less work experience, less information about jobs, and less social network and capital compared to older workers.
These factors make it more difficult for young workers to find a job. Second, during bad times, young workers are more likely to be fired, because they lack seniority whether informal or formal. (Forsythe, 2014). It is widely accepted that young people are the last hired and first fired part of the labor force (Morsy, 2012; Edwards and Hertel-Fernandez, 2010). Third, young workers are more mobile and thus spend a larger share of their time on job seeking. These factors make young people in some ways inferior workers, and during recessions employers gradually exchange inferior workers for superior ones (Solow, 1964). In addition to recessions, during weak growth periods, employers are more likely to fire unskilled workers and hire skilled ones, even at a higher wage, because turnover among skilled and experienced workers may be more costly for firms (Solow, 1964).

To test whether there is concentration in certain categories for a given level of the general demand, I examine the unemployment rates of six age categories for different times with the same overall unemployment rate. I pick four dates that have 6.3 percent overall unemployment rates. I also look at the unemployment rates of age groups for men and women separately. Table 35 shows that unemployment rates of almost all age groups for both male and female workers increased over time.

However the changes in unemployment rates are larger for younger workers and men than for other groups. Young men, especially suffered most over time.
In addition, I calculate the correlation coefficients between the unemployment rates for four different 10-year periods. The average of the correlation coefficients presented in Table 36, indicate that all groups are highly correlated to the overall unemployment rate in all periods. In general, young age groups have lower correlations with the overall unemployment rate compared to middle age groups. However, during the 1976-1985 and 2007-2016 periods (severe recession periods) the correlation between unemployment rates of younger people and the national unemployment rate increased significantly, and converged to the coefficients of other age groups. Thus, we can say that youth unemployment, especially teen unemployment, becomes more sensitive to overall unemployment rates during recessions and post-recession periods than in normal times.

### Table 36: Correlation between Age Groups and Overall Unemployment Rate

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-1985</td>
<td>0.556</td>
<td>0.568</td>
<td>0.973</td>
<td>0.946</td>
<td>0.917</td>
<td>0.890</td>
<td>0.942</td>
<td>0.903</td>
<td>0.929</td>
<td>0.938</td>
<td>0.931</td>
<td>0.881</td>
<td>0.916</td>
<td></td>
</tr>
<tr>
<td>1986-1995</td>
<td>0.859</td>
<td>0.937</td>
<td>0.961</td>
<td>0.950</td>
<td>0.925</td>
<td>0.846</td>
<td>0.913</td>
<td>0.872</td>
<td>0.833</td>
<td>0.939</td>
<td>0.877</td>
<td>0.897</td>
<td>0.883</td>
<td></td>
</tr>
<tr>
<td>1996-2005</td>
<td>0.854</td>
<td>0.891</td>
<td>0.956</td>
<td>0.959</td>
<td>0.941</td>
<td>0.906</td>
<td>0.918</td>
<td>0.787</td>
<td>0.853</td>
<td>0.903</td>
<td>0.905</td>
<td>0.869</td>
<td>0.863</td>
<td></td>
</tr>
<tr>
<td>2007-2016</td>
<td>0.959</td>
<td>0.977</td>
<td>0.980</td>
<td>0.980</td>
<td>0.987</td>
<td>0.982</td>
<td>0.977</td>
<td>0.925</td>
<td>0.946</td>
<td>0.973</td>
<td>0.975</td>
<td>0.966</td>
<td>0.957</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

3.6 Long-term Unemployment

The number of unemployed people always increases during recessions, for two main reasons: entrants to unemployment pool and increases in existing members’ duration of unemployment. The number and the ratio of long-term unemployed show how the burden of unemployment is concentrated among a limited number of individuals. Even if general unemployment rates fall, unemployment can still be more heavily concentrated on those who remain unemployed for a long time. Long durations of unemployment have substantial effects on the likelihood of being employed, and future earnings. Krueger et al. (2014) find that long-term unemployed individuals are less likely to be employed, and more likely to drop out of the labor force due to depreciation in their skills, losing motivation for working, and employer discrimination. Thus, long-term unemployment is always important regardless of the level of the overall unemployment rate.

The share of long-term\textsuperscript{27} unemployment in total employment reached a historically high level of 45 percent following the Great Recession, while its previous historical peak in the 1980s recession had been around 26 percent (Figure 32). Both the number and the share of the long-term unemployed people continued to increase even after the recession ended. Some authors interpret this as situation in which high and persistent unemployment transforms cyclical unemployment to structural unemployment (Mathy, 2017). On the other hand, general demand conditions will affect the extent of long-term unemployment but with a lag (Solow, 1964). Long-term unemployment has fallen in recent years, but it

\textsuperscript{27} According to BLS, long-term unemployed are individuals who have been looking for work for 27 weeks or more.
has remained high even compared to its peak levels in previous recessions, due to depth of
the recession and the slow recovery.

**Figure 32: Share of Long-Term Unemployment in Total Unemployment (%)**

![Graph showing share of long-term unemployment over time]

Source: BLS

I estimate the following model to test the current and lag effect of the change in the
overall unemployment on the ratio of long-term unemployment to total unemployment for
2 periods; 1948-2016 and 1980-2016.

**Equation:** The share of the long-term Unemployment (% total of unemployment) = a + b
General Unemployment + c General Unemployment (-6) + d Time Trend

For the two periods, the current unemployment rate is negatively associated with
the share of long-term unemployment. The coefficient is negative because during
recessions millions of workers lose their jobs, and the share of new unemployed increases,
while the share of long-term unemployed workers declines. However, during recoveries,
employers first hire unemployed people who have had a shorter unemployment spells
rather than long-term unemployed people. The second independent variable, the previous
unemployment rate (6 months ago) is estimated as 4.6 for 1980-2016 period. A one
percentage point increase in the unemployment rate will raise the share of long-term
unemployment in total unemployment by 4.6 percentage points with a six-month lag. The results also indicate a time trend regardless of the change in the general unemployment level. The ratio is increasing by 0.7 percentage points annually holding the general unemployment level constant.

**Table 37: Regression Results**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate</td>
<td>-0.46</td>
</tr>
<tr>
<td>Unemployment Rate (6 month lag)</td>
<td>3.28</td>
</tr>
<tr>
<td>Time</td>
<td>0.02</td>
</tr>
<tr>
<td>R-squared</td>
<td>74.78</td>
</tr>
<tr>
<td>Sample</td>
<td>1948-2016</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>822</td>
</tr>
</tbody>
</table>

Table 37 shows that the effect of the previous unemployment rate and the trend became larger in the 1980-2016 period. In this period, the US economy has experienced several recessions including the two most severe post-1945 recessions: the 1981-82 recession and the Great Recession. The high frequency and the severity of the recessions kept unemployment rates high for a long time. Since 1980, the number of months with an unemployment rate above 7 percent is 147 (more than 12 years), and this has contributed to higher long-term unemployment rates.

I also examine the changes in the share of the long-term unemployment in total unemployment by keeping general unemployment constant. Table 38 shows the share of long-term unemployment in total unemployment for eight different dates when the overall unemployment rate was 6.3 percent, and six different dates when the overall unemployment rate was 9.4 percent. The share of the long-term unemployment increased
to 34.3 percent in May 2014 from 8.3 percent January 1980 (26 percentage points over 34 years). If we do the same exercise for 9.4 percent of unemployment, the share of the long-term unemployment increase by 27 percentage points over 28 years, holding unemployment constant.

Table 38: Share of Long-Term Unemployment for Different Months with Same Unemployment Rate

<table>
<thead>
<tr>
<th></th>
<th>Jan-80</th>
<th>Feb-80</th>
<th>Mar-80</th>
<th>Apr-87</th>
<th>May-87</th>
<th>Dec-90</th>
<th>Jun-03</th>
<th>May-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate (%)</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
</tr>
<tr>
<td>The Share of Long Term Unemployment in Total Unemployment (%)</td>
<td>8.3</td>
<td>7.6</td>
<td>9.1</td>
<td>14.4</td>
<td>14.8</td>
<td>10.6</td>
<td>22.8</td>
<td>34.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>May-82</th>
<th>Jul-83</th>
<th>May-09</th>
<th>Jun-10</th>
<th>Jul-10</th>
<th>Oct-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate (%)</td>
<td>9.4</td>
<td>9.4</td>
<td>9.4</td>
<td>9.4</td>
<td>9.4</td>
<td>9.4</td>
</tr>
<tr>
<td>The Share of Long Term Unemployment in Total Unemployment (%)</td>
<td>15.5</td>
<td>24.5</td>
<td>27</td>
<td>44.9</td>
<td>44.9</td>
<td>42.6</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on BLS data

**Who are the long-term unemployed workers?**

Young workers always have higher unemployment rates compared to other age groups. However, young workers typically have shorter unemployment spells. They have also a good alternative to work during the recessions; they leave the labor force to pursue additional training or education. But, workers 55 years and older have been overrepresented in the long-term unemployment compared to their share in the labor force and in the unemployment pool. Men have a slightly higher long-term unemployment share compared to women. Black workers have higher shares of long-term unemployment than Whites and Hispanics, and long-term unemployed Black men are less likely to be reemployed than non-Hispanic nonblack men (Rothstein, 2016).

The level of long-term unemployment and its incidence among different groups have both economic and social aspects regardless of the national unemployment level.
CONCLUSION

Structural factors—e.g., technology, globalization, industrial shifts, and demographic trends—and recessions have greatly influenced the size and composition of US labor market over the past four decades. These changes have affected demographic groups unevenly. A wide range of labor market outcomes indicate that these changes have favored some groups, especially women and the more educated, while hurting other groups, especially men, the young and less-educated workers.

Labor force participation rates have been declining for almost all groups except for those 55 years and over. However, decline in the labor force participation of prime-age men is an especial anomaly. Labor force participation rates for prime-age men have been on a declining secular path for half a century and, today roughly 11 percent of prime-age men (7 million) are neither working nor looking for work. My analysis indicates that structural factors have played the major role in this decline by reducing the demand for less-skilled male workers. In contrast, supply side factors can explain only a limited part of the decline.

Weak demand conditions, especially those who are less-skilled, reflect several factors. First is the shift in industrial composition from male dominant sectors such as manufacturing and construction to female dominated sectors such as health and education. For example, 75 percent of the jobs generated between November 2007 and December 2016 were in education and health services. BLS projections indicate that this trend will continue.
Second, men have been less willing to accept these “pink-collar” jobs due to related stigma (the culture of masculinity) and lower wages. “Identity” is important for the work and career choices of people (Akerlof and Kranton, 2000). For example, some occupations, such as nurses, are seen as feminine. In addition, most of the jobs created in the service sector have lower status, and pay less than the jobs in traditional male dominant sectors such as manufacturing. For this reason perhaps, White men are less likely to have lower status health care jobs than Blacks and other minorities (Dill et al., 2016). As a result, between 2009 and 2016, employment-population ratios increased less for non-Hispanic White prime-age men compared to Black and Hispanic prime-age men.

Third, high levels of involuntary part-time employment relative to the unemployment rate have made the situation harder for prime-age men. Prime-age men are less likely to work part-time; in 2016, part-time workers made up less than 7 percent of total prime-age male employment. My results show that involuntary employment has had a counter-cyclical pattern, but the ratio of involuntary part-time employment to overall unemployment has had an upward trend. This may reflect the role of structural factors such as the shift in employment away from goods production and toward services (Yellen, 2014), and demographic shifts in part-time employment.

Forth, prime-age workers have to compete with persons over 54 years old in addition to women. The group’s share of labor force and labor force participation rate have been increasing for more than two decades. In addition, in recent years, the median age has increased more in male dominated sectors such as construction and manufacturing than in the overall labor force, while the median age has declined for health and education services. As a result, there have been fewer jobs for prime-age men, especially young adult men,
compared to past decades. If the employment-population ratio for men aged 55 and over were the same as it was in 1993, then this group would have roughly 3.7 million fewer jobs today. This number is equal to 6 percent of all prime-age men, and more than fifty percent of the number of prime-age men not in the labor force.

Fifth, labor market outcomes of young workers, especially less-educated, have been deteriorating over time. As a result, compared to previous decades, young adults are more likely to enter their prime years without work (or with disadvantages due to not working such as lack of experience and skills). In addition, studies indicate that graduating in a recession leads to negative wage and employment outcomes for both current and future periods (Altonji et al., 2016; Oreopoulos et al., 2012). Therefore, the decline in the labor force participation of prime-age men is not only related to the employment status of prime-age men, but also to how young adults are prepared for the labor force.

Sixth, employment growth between 2007 and 2016 was uneven across metropolitan areas. In the 2007-2016 period, the 30 largest MSAs generated more than the total of job creation nationwide, while in the 1999-2007 period, employment growth was more evenly distributed across regions. The ongoing decline in the manufacturing and construction might have contributed to the post 2007 regional differences. Also, these changes might have made employment growth for non-Hispanic Whites weaker compared to Hispanics and Asians, because the population share of non-Hispanic Whites is lower in the large MSAs than in nonmetropolitan areas.

In addition to structural trends, recessions have influenced the labor market in this period. The Great Recession was the worst recession in the postwar era. The sluggishness of the recovery and unprecedented levels of the long-term unemployment are the
recession’s two unique characteristics. These two indicators raise questions about the role of structural and cyclical factors in the labor market. There have always been structural unemployment, but my findings show that unemployment rates change over the cycles, and this cyclical pattern shows no significant change over time. In other words, unemployment rates have been very sensitive to general demand, and have increased and decreased together with the national unemployment rate over time. Also, unemployment rates of sub-groups have generally converged to the national unemployment rate, and there is no sign that unemployment has been concentrated in certain segments of society, except for young men and less-educated men.

If current trend continues, the share of prime-age men not in the labor force will increase to 17 percent in 2051. Increasing numbers of men disconnected from the labor force will create economic and social problems. Thus, understanding the factors behind this long-lasting decline, and designing policies to reverse this trend are vital to both boost the growth and improve the wellbeing of these men and society as a whole.

From a policy perspective, the decline in the labor force participation of prime-age males has stemmed from structural factors that lead to weak labor demand for less-skilled men, and create barriers for these people to enter or re-enter the labor force. Policy makers should address the two sides of the issue. In addition, they should develop targeted policies that prepare youth well for the labor market.
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